A Clinical Lecture

ON

LESSONS TO BE LEARNT FROM VEGETABLE PATHOLOGY.

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BY JONATHAN HUTCHINSON, F.R.C.S. ENG., F.R.S.,

CONSULTING SURGEON TO THE LONDON HOSPITAL.

GENTLEMEN,—Our object to-day is to endeavour to get some lessons with regard to general pathology from the diseases of plants. The first thing which I want to direct your attention to is the differences which there are between the causes of disease in trees and plants and those in animals. Of course, I need not say that plants have no heart, no nervous system, and no lungs—at least, no lungs in the sense that we recognise them in animals; and therefore they cannot be choked by stopping the access of air to them—at any rate, not by strangulation of any trachea, because they have none, nor have they any definite œsophagus. Still, we find that the general laws of pathology in reference to trees and plants are similar, and I think very instructively similar, to those which we recognise in animals. In the animal, of course, we have to think of the tissues themselves—that is to say, the vital endowment of the tissues. Those who recognise all diseases as pertaining to the solid tissues are called "solidists." Then we have to think of the blood. Those who seek to give to it paramount importance were known in the older day as "humoralists." We of modern times seek to recognise the good which we find in each system; we know that in some cases there is blood disease, that in some cases there may be an inherited tendency in the solids to disease, and that in others there may be various other classes of influence brought to bear.

I would ask any of you on looking at a sickly tree or plant at once to put to himself the question, Why is this tree sickly? And I would ask him to investigate carefully the symptoms which the tree displays. He will then find some of the problems which suggest themselves are just those which occur in the investigation of a patient. First he has to ask himself whether there is anything in the tissues of the tree, in its structure, making it incapable of prolonging its life beyond a certain duration. Next, whether its organs of assimilation are sound; whether the roots which take up nutriment from the ground are in a healthy condition. You will then find that there is a whole series of effects to be comprehended or investigated in reference to the diseases which affect roots. The roots must not be thought of simply as fixation organs, organs to fix the tree or plant; they must be regarded in their far more important sense as organs for the absorption from the ground of fluids and salts and other ingredients by which the plant will be fed and stimulated. If the roots are diseased it will soon be seen that the tree is weakly. Then you must ask, Are the leaves diseased? One might compare the state of a tree with extensive disease of its leaves to the condition of an animal which is suffering from disease of the stomach, and which is therefore unable to assimilate the carbon and fix it and convert the nutrient matter which a tree needs. So if you notice that the whole tree is sickly, that every branch and every leaf seems to lack robustness, it may be taken for granted that there has been some starvation process at work, and starvation affects a vegetable much in the same way as it would an animal, and if that starvation be continued for some time the tree will die. Therefore, if the whole tree be sickly the question to decide is whether there has been some starvation process—in other words, whether the tree is diseased at the roots. You would not think of referring a debility of the whole tree to anything which affected merely its peripheral portions or which had attacked merely its leaves.

I might mention to you a very interesting instance in proof of one general law, of that which we call "competitive nutrition." Suppose a tumour, such as a large cancer, is growing in an animal, that tumour is making great demands upon the nutritive material supplied by the blood, and consequently a great cancer will lead to emaciation of the body and to lack of nutrition in the body generally and its organs, which manifests itself in various ways. In many other respects we notice what we will say is the law of competitive nutrition—namely, that the overgrowth of one organ or the inflammation of one organ not only attracts an excess of nourishment to that organ but leads to impoverishment of another. I think that that is a general fact throughout the whole range of pathology. There are instances of that in congenital hypertrophy; if one part has got larger vessels than the rest there is excessive growth. Many instances of this occur in the animal kingdom. I might mention, in passing, as an interesting instance of the suppression of growth under this competitive nutrition, the case of the narwhal. The narwhal is a species of whale having incisor teeth. In the narwhal one tooth grows to six or eight feet in length, in the shape of a great ivory tusk projecting in front, while the growth of the other incisor tooth is absolutely arrested. In vegetables also we see this law of competitive nutrition which is exemplified in the narwhal—one tooth having obtained an advantage over its brother eventually increases that advantage so much that it suppresses its brother. The germ of the suppressed incisor remains in the jaw, but it is covered in, it is never cut, while the other grows to the great length I have mentioned. Now, as I have said, we see this also in vegetables; and I could not quote a better instance than the potato. Anyone who has access to a potato plot will be able to gather potato flowers, if they are potatoes of the old-fashioned kinds—for all potatoes do not produce flowers—and you will find many fields having very few flowers on the plants. What is the cause of that? Every plant has its destiny, and that destiny is to prolong its kind in some way, either by seed or tubers. The potato has taken to producing under-ground tubers, which have numerous buds, from which buds the potato can be propagated. So that the potato no longer needs its seed for propagation; it is propagated by the tubers which we call the potato root. There is one other curious thing you can notice in the potato plot. If anyone will take the trouble to gather a potato flower now he will find that a great many of the flowers, or buds, have been dropped off, just as the leaves of a tree which are shed in the autumn drop off at a certain place. And if he takes hold of one of the flowers which has not yet been dropped he will find it loose at a certain place, showing that it was destined to fall off. I quote this as an instance of competitive nutrition. The growth of the tuber under the ground takes up all the food which is necessary for the production of seed, and in some obscure way the plant realises that the production of seed is not necessary, or rather it cannot produce it because the supply which is needed is taken up by the tuber and so the flower drops off. Go to any cultivated crop of potatoes later in the year and you will find all the flowers dropped off; there is no attempt to produce seed. The production of the potato berry or seed is comparatively infrequent and that is because our potatoes have been carefully cultivated and those selected which produce only tubers for we do not want the seed. This shows that we cannot do all things at the same time. That has a parallel in cancer in the case of the human body, the cancer preventing the general nutrition of the body and preventing the proper organisation or nutrition of the other organs. Another very interesting instance of that may be seen in trees which tend to produce seed too freely. The Nobilis spruce differs from many of its congeners in its tendency to produce cones. It flowers luxuriantly when it is young and produces an enormous number of cones, which are very large. The effect of this production of cones in the spring is to attract the sap which ought to have gone to the development of the shoots, and the consequence is that the tree is often suppressed, and whereas its leading shoot should have gone up 18 inches it is dwarfed to three or four. I give these as illustrations of the general law which we have observed very freely indeed and frequently in various departments of vegetable pathology—that the overgrowth of one part may lead to the arrest of growth in another. I have said that the diseases of roots are extremely common. I must not go into detail in that matter, but I may mention that various forms of fungus growths attack the roots of plants as well as the

leaves, and some of the worst diseases of plants occur in cases in which a fungus is growing on the roots.

Now I would go back for a moment, for I have not mentioned my best instance of competitive nutrition, and it is a curious one. I have a very remarkable instance of that on my own farm. I have said that the roots are not merely for fixing the tree to the ground but also for taking up nutriment; and in order to best devote themselves to fulfilling their double vocation, whilst some of the roots go down deeply and spread out as fixation structures, others do not go down at all, but come up to the top purposely, with the view of getting the first supply of rain and other nutriment that there may be about, such as manure which may exist in the upper layers of the soil. The poplar and some other trees send out numerous rootlets to gather up the moisture and nutriment for the parent tree. In one particular poplar which I have under observation numberless roots have in this way been sent out and reaching the surface 30 or 40 feet from the parent tree have there budded and grown up on their own account. Thus we have now a crescentic line of small poplar trees, the parent forming the centre of the arc. What will be the effect on the parent of these little trees growing up around it? The effect seems practically certain that it will be killed. These branches which were sent out for food for the parent tree have set up on their own account, and as a result of that the parent will have to die. That may be taken as an instance of the diversion of nutrition from one part of an organism to another, if you consider these separate poplars as part of one whole organism. Here is an instance in which a mother tree has sent out her colonies, and these colonies having taken up what was desired by the mother for herself they have not returned it to her, but have kept it themselves, and the result will be the death of the mother tree.

I have already briefly stated that the roots of trees are often attacked by fungi. These also often attack the stems of trees; and here some of the most interesting lessons may be learnt in reference to the pathology of animals. Sometimes fungi will attack quite healthy trees, sometimes they will attack diseased trees, and very often they will attack wounded trees, just as you know occurs in diseases in the human subject. We have certain specific animal poisons, those of the fevers, which may attack perfectly healthy persons, and good health seems to be no security whatever against them. Small-pox is the best instance of that. Indeed, it is even thought that those who are most healthy and have the best supply of fluids and the richest blood in their bodies suffer more severely than others because they have a larger field for the development of the parasitic poison which has been introduced. It is so also in the matter of fungi on plants. There are, of course, an immense variety of these fungi, which have very different tendencies. Some may grow on perfectly healthy plants, no predisposing influence being necessary to their growth; while others wait until the plant or tree has been injured, or until it is sickly, or until it is nearly dead, before they will or can attack it.

Now, the extreme importance of wounds, and the great importance of what we may call the antiseptic treatment of wounds in plants, is illustrated quite as definitely in vegetable as in animal pathology. A wound to the bark of a plant will allow the fungus to settle on it and grow in it and cause disease of the stem, and it will convert the wood tissue of that stem into a soft structure, destroying the wood, or "delignifying" it, as it is called, and it will also destroy the channels for the passage of fluids whose absorption is necessary for the life of the plant. In other words, the fungus will make the plant rot. I have here a piece of wood in which there are certain blue lines, and if you look at a cross section of the structure you will see that there is a circle of blue lines which correspond with those shown in the vertical cut. Each of these blue lines represents the growth of fungus which you may demonstrate with the microscope. These growths may affect the whole length of a tree. In this way the stem of the tree may be very extensively disorganised and the timber will be converted into a structure which is no longer capable of carrying on the passage of the sap. This is not at all uncommon. Those of you who have access to plantations of Weymouth pines will often find one of these big fir-trees with a single bough completely brown and dead, the rest of the tree being apparently quite healthy. You will find, too, that some of these boughs are at a considerable height where they are not very likely to have been injured. As a matter of fact no twigs have been broken off, but very likely you will be able to find that there is a scar, such as I show in this one where a little injury has occurred. That injury may have been due to the attack of a bird or a hailstone, or from a blow, and that slight injury will have allowed the fungus to enter; and that fungus, having passed into the wound, will pass into the stem of the tree, and will probably grow and work up its long axis. Possibly it may not grow very far, as these things differ in growth tendencies. But in those instances in which a whole branch becomes dead it will be found that the fungus has entered at one single wound and has passed into the branch, and that branch has had its circulation interfered with so that the leaves have died, the remaining part of the tree being still healthy. Next the fungus may tend to flower and produce on the stem a spore-bearing body which is equivalent to its flower. This is a very destructive fungus indeed; it spreads far and wide in the tissues and produces the death of the wood. During the last year we have noticed a curious fact at Haslemere. On the Weymouth pine there is a very common fungus called *Peridermium Strobi*, and that fungus has been known on the continent to be liable to be attacked by another fungus. It has happened to us to identify this parasite on a parasite, and it appears to have been the first time that it has been noticed in England. It is very difficult to say where the germs have come from, but we have found a number of cases on the Weymouth pine at Haslemere, and we have been told at Kew that it had not been observed, to the knowledge of the authorities there, in England before, though, as I have said, it has long been well recognised on the continent. The name of the second fungus, if you wish for it, is *Tubercularia maxima*. It may be assumed that there is some law which associates the two kinds of fungus together. So I now hint that the protection of a wound from infectoin is just as necessary in the case of a plant as it is in an animal, though it is not a practicable measure in the great majority of cases. When we cut the bough off a tree it is not often practicable to use antiseptics, but when dealing with valuable trees we should smear the wound which is left by cutting off the bough, to prevent the entrance of a fungus into it, because any injury to the bark involves the risk that a fungus will so enter. A fungus is apt to destroy fir-trees on a large scale by inducing decay of the middle of the wood; it creeps up the whole stem of the tree, and then the tree will be observed to be sickly and it will die. The middle of that tree will afterwards be found to be rotten. We find it to be due to a fungous growth. All rot and decomposition are due to the growth of fungi; it is not chemical decomposition. The tree is quite hollow inside. The source of infection in that case—and here we have another interesting thing to think about in reference to infection in animals—is believed to be by the roots and through the agency of rabbits and rats. The rabbit burrows under the fir-tree, eats the root and injures it a little, and then it runs about under other trees and gathers various things on its back, spores of fungs and so on, and then runs back into its burrow and carriei the fungus with it and infects the root, and the fungus grows the whole length of the tree and disorganises it.

Another point of great interest in reference to fungus-life in trees and plants is the fact that many forms of fungi appear to be capable of almost indefinite periods of latency. They do not always grow—the fungus may be a long time without growing; and here we have another important lesson corroborating what we hinted at in a former lecture when speaking of tuberculosis, that the tubercle bacillus can remain for very long periods of time in the tissues of the body without producing any morbid condition whatever. Sometimes it may live for his whole life in the tissues of its host and not cause any discomfort. There are hundreds of instances in vegetable pathology in illustration of that. The fungus may be present but there may be no active disease; whereas in another case there may be no visible fungus present, but there may be a considerable amount of disease.

There are some curious facts with regard to idiosyncrasy in trees and vegetables. In animal pathology we have to make a great allowance—and I do not think we can make too much allowance—for original differences, of which we can detect no evidence until the disease attacks the individual, and then we find no two individuals are exactly alike as regards the disease. The same disease or the same poison may attack one person and produce a very different result and intensity of disease in him than in another. Yet we do not see any

great difference in the persons until the disease occurs. To such we apply the term "idiosyncrasy," and we recognise under that term the fact that different individuals are endowed in different ways and react in different ways to the influence of poisons. That is a condition which is primary but which is not revealed until there is disease. This idiosyncrasy is a personal peculiarity, and personal peculiarity is just as real in the vegetable as in the animal world. I have seen two oak-trees standing near together in the same field, of the same age, equally healthy and, as far as I can tell, under exactly the same influences, but one oak-tree has kept its leaves on all the winter, while the other has shed them in the ordinary way. The one which kept the leaves on from last year had its leaves turn brown. This does not appertain to one bough of the tree; there is the same peculiarity in the whole of the tree—it has got a personal character and that personal character is a tendency to keep on its autumn leaves. Everyone who has been in the country will have seen instances of that retention of the summer foliage, which should have fallen in the autumn, through the winter. Young beech-trees which grow in hedges and have been cut down are very apt to do this, and you can notice examples of it in many trees. In the case of the beech-trees one tree may be close to another and in exactly the same conditions, one keeping its leaves and the other dropping them. This is an instance of a peculiar tendency or idiosyncrasy occurring in the trees, of which we can give no explanation. There is an evergreen oak, and my suggestion as regards this phenomenon is that it is an attempt on the part of the oak to become an evergreen. It is one of those numerous experiments which life processes are constantly making. One of these oaks is trying the experiment as to whether it can keep its leaves through the winter. It succeeds in keeping them but they turn brown. In process of time it may succeed in keeping them green throughout the winter.

Another little lesson which I think we can get from the observation of fungi is the law of diffusion. But you must understand that the study of fungi which attack plants and trees is an immense subject. I expect you are taught in the medical and surgical theatres that the disease known as "tetanus" is due to a specific form of microbe and that it is conveyed by inoculation. The disease is always introduced as an inoculation. Now, there are certain facts which make that statement difficult of substantiation. I am not now going to dispute it, but only to hint at things which make it improbable and to suggest that it is a matter upon which we may possibly get some light by the examination of what occurs in vegetable life. Is it not very curious that the germ which produces tetanus should be so widely diffused and yet should so seldom produce its effects? We get no real epidemics of tetanus. If it is a specific germ why do we not get a whole lot of tetanus cases, a whole lot of tetanus poison lurking in the soil? Instead of that we get one tetanus case here and another there, but nothing at all like an epidemic; the cases are almost equally scattered about, and there is no local prevalence. We know it is very prevalent in tropical countries, but in England we get nothing which will justify us in regarding it as an epidemic, because it is never unusually prevalent at any one time or locality. Now it is very curious that a specific germ having that power should be so widely diffused. However, we have some similar facts in reference to vegetables. The fungus which attacks the Weymouth pine is extremely common, and I think it attacks only that tree. Wherever these pines grow will be that fungus ready to attack it. That is an illustration of the law of diffusion, and there are many questions relative to the laws of diffusion with regard to fungi which I suggest are well worthy of our study. Science has, in some branches, enlightened us to where these germs are to be sought for and has enabled us to destroy them. We may hope for further discoveries.

And here I have to allude to another branch of the subject which is of great interest, and to extend a little caution in the inferences which we draw based upon an incomplete examination of the facts in reference to the different species of fungi which attack the human skin. There are a number of these fungi. One of them produces pityriasis versicolor; another causes true favus; another causes ringworm, and it is suggested that there are two or three kinds of ringworm. I would hint that we should be a little cautious in believing that these diseases are not transmutable. My belief is that from the fungus of common ringworm of the scalp you can produce tinea versicolor, the common chloasma of the chest of an adult. I have seen many instances in which young nurses attending children the subjects of ringworm have developed, not ringworm but tinea versicolor on the chest. I therefore suggest that we should be a little cautious in inferring, because the external appearances produced by the disease which we know as tinea versicolor are different from those which we know as ringworm and are diagnosable easily from each other, that the two things are not transmutable. After all, it may be a modification of the fungous growth, and it may be the same fungus which produces the two. My belief is that it is, and that the large fungus ringworm and the small fungus ringworm are very likely the same; and that the fungus which produces favus, which is very much less common, is only a very modified form of that which produces ordinary ringworm. A great lesson in caution on this point is to be derived also from the old doctrine as regards rust on wheat. You know that rust on wheat is a disease in which the leaf of the wheat becomes brown all over and dies prematurely. The wheat crop is very much injured by this destruction of its leafage. It may occur on grass and on wheat. But as to wheat especially, on account of the importance of the crop, it became an urgent question with agriculturists as to how it could be prevented. Farmers observed that where the common barberry grew in the hedges there was likely to be rust in the wheat. Botanists were asked about this and they at once declared that it was impossible; they said that they recognised the fungus which grew on the barberry, and that they also recognised that which was produced on the wheat and they said that it was impossible that they could be the same as they belonged to totally different species. The farmers protested that where the barberry grew there was the rust, and notwithstanding the opinion of the botanists they felt that there was some connexion and they acted upon their belief by getting rid of the barberry trees to prevent the rust in their wheat. A law was passed in the State of Massachusetts calling upon farmers to exterminate all barberry trees out of their hedges; it was made compulsory on farmers to do this. If they did not do it the work was to be carried out by the local parish authority and the farmers were to be charged with it. All this time the scientific men were saying that the farmers were ignoramuses who did not study botany and did not understand the matter, because the fungi on the two things were totally distinct. And then came the great discovery, which is now illustrated in many departments of fungology, that the plant is one which requires two different hosts; in one host it produces one special spore and in another another spore. It is the same fungus which develops on the barberry and then being blown off there takes root on the wheat and becomes spread over the wheat-fields. Thus the farmers were shown to be quite right—that it was a transmutation and change of form of the same kind of fungus due to the different environment which was thus seen in different stages of its development. That I mention as an instance in which science has lagged behind the observation of practical men. As scientific men it is for us to be modest in our statements and not to urge too strongly theories which seem contradicted by the general verdict of experience. We should learn wherever we can, listen to everybody, and take into account the propositions, and maybe the mistakes, of those who have had opportunities of making practical observations, so that we may arrive at the truth from them, though it may not at first appear to be the scientific truth. So I think with regard to the study of many forms of disease that we shall with further observation simplify our conceptions with regard to vegetables and animals, and that we shall find that many of the diseases which we have considered as separate are not in reality so, or not so much so as we have thought.

Now I come to a different subject—namely, the effect of living parasites in inducing disease on plants. I must hasten through these very curious specimens which I have placed before you. These illustrate various doctrines and it is with the doctrines I am dealing to-day—those which have a wide bearing. On the table you will see many good specimens of what go by the name of "pine-apple cones"—a very appropriate name, because they look like pine-apples. These are not seed-cones. The tree is the Norwegian spruce. The cones are caused by the presence of an insect, the aphis, one of the innumerable aphides. The aphides are ubiquitous and they affect almost every plant. Some aphides affect many plants; there are an enormous number, with very slight differences, but each for the most part attacks its own

particular plant. The history is that a mother aphis in the spring comes forth, having been lodged somewhere on the tree, perhaps in the bark, and crawls up the stem of the fir-tree, and deposits a number of eggs just at the point where one of the branches is about to develop. She surrounds herself and her eggs with what looks like cotton-wool. If you look in the spring you will be able to identify what looks like a little mass of white wool deposit. In this cotton-wool deposit the little eggs are glued together, a beautiful object, the eggs being hung together like a bunch of grapes and kept warm in the woolly covering at the foot of the little growing stem. What is the effect of the presence of these eggs? The mother aphis does not burrow at all, but she wounds the bark a little in order to glue the eggs into the place and make them adhere. The result of this is that the bark at once begins to thicken, and the little leaves which should be ordinarily needle-shaped thicken at their bases and form bracts arranged like a cone. The eggs are hatched out where they were placed at the foot of the twig, and the larvæ thus hatched from the eggs crawl up this cone; the cone is still open at these bracts and the aphides crawl in. Then the bracts close down and shut the aphides in, and there they rest for six weeks and grow. Each fixes its proboscis into the newly-formed tissue, sucks its nutriment, and there stays until it attains its full growth. Then the cone opens just as a seed-cone opens, and the aphis creeps out just as the seed drops out of a seed-cone. The little insect has rudimentary wings, and there is not only one of them but thousands, and they next fix themselves to the nearest leaf, and having fixed their feet they split their coats open and the fly comes out and leaves its limbs and rudimentary wings glued to the leaf. There are two of these growths under the microscope, and very curious they are. No one would know what they are unless they were acquainted with how they had resulted. The fly comes out with different wings and flies away, and being destined for a short duration of life is ready to propagate its kind. This is one of the very best instances I could give you of what is called "a gall." Let us use no mistaken phraseology; let us not speak of these as being made by the insect—they are not made by the insect. It is the result of the influence brought to bear upon the plant by the insect, and what we have to observe is a lesion of altered nutrition, on the part of the plant, due to local irritation. If I made use of a bold expression I might say that the plant mistakes the irritation produced by the living egg for the irritation produced by its own living seed. If there were living seeds the plant would grow a cone about them. It is obvious that the local irritation cannot be consciously appreciated by the plant, and that the tendency to growth on the part of its tissues is the same thing with different kinds of irritation. The gall is a product of the tree caused by the insect, but it is not a thing which is made by the insect in any sense whatever. The tree builds it and the kind of gall which results depends on the life and nutrition tendencies of the tree. I might exemplify that by saying that here we have the character of the tree illustrated. There are several other species of fir-trees very similar to these common Norwegian spruce. In another, in which the tree is very nearly allied indeed to this—so nearly allied to it that I do not know them apart and have no means of distinction—the tendency is to produce the cone at the very tip of the twig, and to produce a very small one. But there are other fir-trees very like this which never produce these false cones. It is only this one kind which has that tendency. One could go through the various kinds of fir-trees and show that an easy means of distinguishing between them is by the different diseases which they develop. If a fir-tree I was looking at had developed the false cones I should be almost sure that it was a Norwegian spruce. For instance, the distinction between the Douglas spruce and the Norwegian spruce is not always easy, but by this gall I know directly that this is a Norwegian spruce. The aphis probably tries experiments on the Douglas spruce, but the tree will not grow its cones. The tree determines the kind of gall which will be produced. Another general law in galls is that the character will depend a good deal on the precise part of the tree which is attacked. There are an immense variety of galls, and the variety depends partly on the difference of the trees and in part on the spot at which the insect makes its attack. Oak-trees are an illustration of this. Here is one of the commonest galls, which is sometimes called a "marble gall." But there are endless varieties of galls. Some are produced on the middle of the leaves and others are produced on the main midrib; and according to the precise time in the life of the plant and the part attacked so will be the growth which results from the irritation of the gall insects whether fly or aphis. The precise species of insect is, of course, important, but it is far from determining the whole phenomena.

Such, then, are the general laws. I have here a whole lot of specimens, but I do not know that they will add very much to the subject; you may take them and examine them for yourselves afterwards. But a country walk will furnish you with plenty of opportunities for observation, and that is always preferable to taking the observations of others. In this case of the oak-gall the insect carefully selects the actively growing tree, where the sap is moving, deposits its egg in a certain place, and then the tendency for this growth occurs. The green gall is formed and then that gall becomes woody, and the wood serves as a protection for the insect in the winter. Some of these cynips come out in the autumn. I cut this one open and find that it has not been hatched; there it is in the middle of the gall, almost ready to come out. If we had waited a little longer it would have come out as a fly. I have sometimes cut these when the fly was just ready to come forth and it has come out with apparent gratitude for its easy release.

A CASE OF CEREBRAL ABSCESS COMPLICATING GUNSHOT INJURY WITH BILATERAL LOSS OF PERIPHERAL VISION.

BY ALFRED W. SANDERS, M.D. LOND., F.R.C.S. ENG.,
LATE DEMONSTRATOR OF ANATOMY, ST. MARY'S HOSPITAL; SURGEON TO VOLKS' HOSPITAL, PRETORIA; LATE CIVIL SURGEON IN SOUTH AFRICA.

THE following case came under my care while working in No. 2 General Hospital at Pretoria.

On the night of Dec. 26th, 1900, the patient, a private in the 1st Liverpool Regiment, while fighting in the trenches at Helvetia was struck on the back of the head by a rifle bullet. From the history that he gave I gathered that the loss of sight had been immediate, but whether the blindness was total I could not ascertain. Ten days later he was admitted into the hospital, having come down by train. He was said to have lost consciousness while travelling and from one of his comrades I learnt that he had certainly got worse during the journey. When first I saw him he was lying in bed with limbs extended, breathing deeply and with eyes closed; he could be roused, however, and then became somewhat noisy and abusive. The temperature was 103·5° F. and the pulse was 76, with a sharp sudden beat and somewhat increased tension. In the right occipital region was a suppurating wound about two inches long. There was no evident paralysis. The pupils were equal and reacted to light. It was decided to explore the wound at once and chloroform was administered, very little being required.

The scalp wound having been enlarged a somewhat dumb-bell-shaped aperture was found in the skull. The shape of the aperture conveyed the impression that the bullet had just entered and emerged from the cranial cavity, splintering all the bone in its path. The margin was splintered and several small fragments lay loose in the wound. Bulging into this hole was a portion of brain which did not pulsate but felt tense and elastic. It was decided to puncture this with a trocar and cannula. While removing a fragment of bone, however, a bead of pus was seen to escape and a probe inserted at this point passed nearly two inches into the brain. The opening was dilated and fully four drachms of pus and broken-down brain matter came away. No fragments of bone were felt in the cavity which was then gently washed out with sterilised water and drained by a fair-sized tube. The aperture in the skull had its centre about two and a half inches above the external occipital protuberance and one and a half inches to the right of the median line. The next day, though still drowsy and irritable, the patient was more sensible. The morning temperature was 100°, and the evening was 102°. The pulse was 54. On Jan. 8th he was much more sensible and complained of loss of sight. The temperature was 100°. On the 10th his temperature was normal, the wound looked healthy, and the amount of discharge had diminished. He still complained of loss of sight,

but was able to distinguish the sister and the colour of her dress. He improved uninterruptedly as regards the local condition and though childish for a few days in the end appeared mentally quite normal. On the 14th, on making a rough examination, I found there was marked diminution of the visual fields. Four weeks later, the wound having healed, he was able to get up. His gait was uncertain and as he walked he seemed to peer in front of him. With a roughly-made perimeter I mapped out the visual fields as accurately as possible and found that in either eye vision was limited to quite a small area around the fixation point. In most directions this did not exceed five degrees and in none did it reach 10 degrees. Figs. 1 and 2 indicate the kind of chart obtained. I could make

FIG. 1.

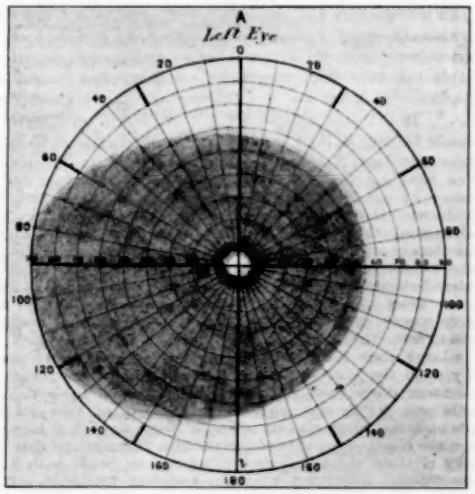
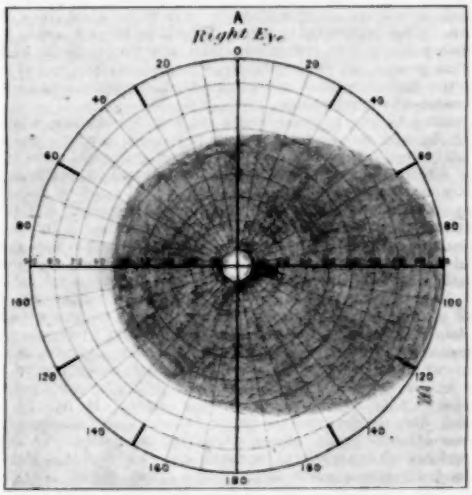


FIG. 2.



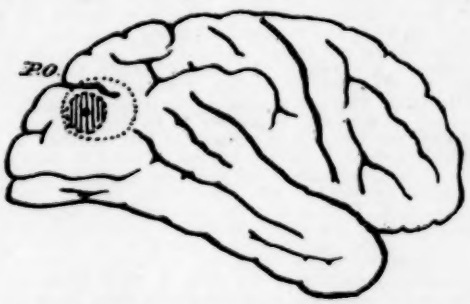
Figs. 1 and 2 show somewhat diagrammatically the kind of perimetric tracing obtained. The visual area is seen to be very small, extending little beyond the macular region in any direction.

out no marked difference in the eyes. He was unable to read half-inch type further away than two feet. At the end of February, when I left Pretoria, no improvement in vision had been made. He had never been able to read, but could spell out the letters on a card. There was no evidence of "mind blindness."

I have ventured to record this case on account of the rarity with which such lesions occur and because of the extensive impairment of vision produced by an apparently unilateral injury.

As regards the site of the lesion the aperture in the bone was dumb-bell shaped with the long axis horizontal, the centre being one and a half inches from the median line and two and a half inches above the external occipital protuberance. The drainage tube entered perpendicularly to the surface of the skull for fully one and a half inches. There must, therefore, have been considerable damage to the cortex and underlying white matter. From the position of the skull wound and its character I see no reason whatever to suppose that there was any injury to the left side of the brain. In order to ascertain the portion of brain most probably involved in the injury, I marked out on a skull the site of the perforation and fixing the pin of a trephine two and a half inches above the external occipital protuberance and one and a half inches from the middle line of the head removed a one-inch disc of bone. The bone removed was part of the parietal bone immediately adjacent to its posterior border. The cortex exposed was the fore part of the occipital lobe. A probe passed one and a half inches into the brain substance vertically to the surface penetrated the white matter of the occipital lobe, entered that underlying the posterior part of the parietal lobe (angular gyrus), and nearly penetrated the lateral ventricle. The portions of the brain actually destroyed by the injury and abscess were, I believe, (1) the anterior part of the occipital cortex on its outer aspect; (2) the hindmost portion of the angular gyrus; and (3) part of the white substance of the occipital lobe, including part of the "optic radiation," and the white matter underlying somewhat deeply the angular gyrus (Fig. 3).

FIG. 3.



Drawing of a brain showing area of cortex exposed in trephine wound and possible extent of sub-cortical injury in the case recorded. P.O., Parieto-occipital fissure.

The point of chief interest and greatest difficulty is to explain the very extensive impairment of both visual fields produced by an apparently unilateral lesion. The question naturally arises, Was the injury strictly confined to the one side? At the time of operation nothing was seen which in any way indicated that the injury had extended to the left side. The fracture was clearly local and situated well to the right of the middle line, and though the margins were splintered there were no fissures extending beyond. The abscess was not large and after the matter had been evacuated pulsation was visible in the escaping fluid. Very little discharge came from the tube subsequently and the wound healed quickly and without any trouble whatever. The shape of the aperture in the skull seemed to indicate clearly that the bullet had just entered and emerged and no fragments of metal were found. The left occipital lobe would be protected from pressure or invasion by the abscess by the strongest portion of the falx cerebri.

What exactly is the "visual area" of the cortex is still open to discussion. The portions of the cortex to which this function is generally assigned are that of the occipital lobe—especially its mesial aspect—and the angular gyrus. It is

with regard to the latter that there is most uncertainty. Schäfer[1] says: "With regard to the angular gyrus the experiments with Sanger Brown were entirely contradictory to those of Ferrier and Yeo. In animals in which the grey matter of this convolution was destroyed on one or both sides we could discover no defect of vision." He instances, too, the observations of Flechsig on the course of the fibres of the optic radiation. Tracing these during the process of myelination that observer found that none went to the angular gyrus and he therefore excludes this portion of the cortex from the "visual area." Other observers, reasoning chiefly on clinical evidence, take an opposite view. Sir W. R. Gowers[2] says: "The two half vision centres are probably blended in a higher visual centre in front of the occipital lobe. The arrangement is, however, complex. In each centre both fields are represented, but chiefly that of the opposite eye."

This region is also regarded as the mind vision-centre, and a lesion here is believed to cause therefore crossed amblyopia with some impairment of vision on the same side and mind-blindness. "In the very few post-mortem examinations in cases with crossed amblyopia the posterior and inferior part of the parietal lobe—i.e., the angular gyrus in its widest sense—has been involved in the disease." As the higher centre is supposed to be connected to the retinæ it is supposed that a lesion on one side may be to some extent compensated by the opposite hemisphere.

The part of the visual cortex which represents the macular region is generally believed to be that lying on either side of the fore part of the calcarine fissure. Schäfer found that in the monkey "bilateral injury of both mesial surfaces of the occipital lobes appeared to cause loss of central vision, peripheral vision being intact." The cortical representation of the macula, however, appears to be not truly heminanopic but to represent more than the corresponding half of each retina, for generally in cases of hemianopia due to cortical lesion the line of demarcation skirts or goes through the macular region and not through the fixation point.

The case under discussion tends, I think, to show that in man both sides of both retinæ are represented to some extent on one side of the brain. The lesion in the occipital lobe would account for the loss of vision in the left side of the visual fields, and to those who regard the angular gyrus as representing both retinæ, especially the opposite one, the destruction produced by the abscess beneath the angular gyrus would account for the loss of vision in the remainder of the fields. That both macular regions should have escaped, partially at any rate, is possibly to be explained by the bilateral representation of portions of both maculæ. It is difficult, however, to see why the loss of vision in the right side of the visual fields should have been so great. Possibly a gradual recovery will take place in this respect. On the whole, then, I think that the case tends to support the opinion of those who regard the angular gyrus as part of the "visual cortex" and may be described as one of left heminanopia due to the damage to the occipital lobe, with concentric contraction of the fields of vision on the same side as the lesion, due to destruction of fibres of the optic radiation beneath the angular gyrus and to the injury to that convolution. It is, however, of interest to note that there was no evidence of mind-blindness. The patient was unable to read, but he could spell out printed letters and never failed to recognise objects.

For assistance and guidance in the treatment and for permission to publish an account of this case I have to thank Lieutenant-Colonel G. H. Sylvester, R.A.M.C., the officer in charge of No. 2 General Hospital.

[1] Text-book of Physiology, p. 753.
[2] Diseases of the Brain, vol. i., p. 143.

LYNTON COTTAGE HOSPITAL.—The working men of Lynton and Lynmouth, Devon, for the past two years have held an industrial fair in aid of the funds of the Lynton Cottage Hospital. The fair which was held last week resulted in a sum of £90 being handed over to the institution; in 1900 £65 were obtained.

VACCINATION RETURNS.—At the meeting of the Uxbridge Board of Guardians held on August 20th it was reported that during the six months ended Dec. 31st, 1900, there were 457 births in the several parishes of the union; of these children 179 were successfully vaccinated and 108 were exempted.

SOME RECENT INQUIRIES AND RESEARCHES INTO THE POISONOUS PROPERTIES OF NAPHTHALENE AND THE AROMATIC COMPOUNDS.

BY R. P. WHITE, M.D. EDIN., M.R.C.S. ENG.,
HONORARY MEDICAL OFFICER, ROYAL ALBERT EDWARD INFIRMARY, WIGAN;
AND
JOHN HAY, M.D. VICT., M.R.C.S. ENG., &c.,
MEDICAL TUTOR AND REGISTRAR, ROYAL INFIRMARY, LIVERPOOL; ASSISTANT PHYSICIAN, STANLEY HOSPITAL, LIVERPOOL.

THE manufacture and employment of naphthalene and of the aromatic series of compounds constitutes a comparatively large industry both in this and other countries, and especially is this the case since they form necessary and essential ingredients in what are now known as the "high explosives." In the short time at my disposal it will be quite impossible for me (R. P. W.) to give a detailed account of the symptomatology, pathology, and precautions to be used when handling these substances. These points were considered by me in 1892,[1] also more recently in an article which will shortly appear in Dr. T. Oliver's book upon "Industrial Occupations." This paper deals solely with their dosage and their relative poisonous actions, and then some recent investigations upon the absorbability of the dinitro-benzene compounds through the skin. This last point is the more important as Strusmann and Strecker[2] in a recent paper upon the subject of dinitro-benzene rather seem to infer that there is no absorption by the skin.

In large doses the nitrated aromatic compounds act powerfully upon the higher centres, producing coma and death. In smaller doses their effects are noticed upon the sympathetic and peripheral nerves, inducing loss of vaso-motor tone and the symptoms of multiple neuritis. Their action upon the blood is in most cases definite and characteristic; many of them seem to form chemical compounds with the hæmoglobin, producing cyanosis, deficient oxidation, and breaking up of the blood cells. With some of these poisons hæmolysis occurs and much degeneration takes place in the tissues of certain organs. The following conclusions we have drawn partly from my own experience with workmen employed in the manufacture of high explosives, partly from experiments upon animals, and partly from the experience of others. The naphthalene group, which is largely used, is probably much less dangerous than are the benzene and toluene groups. Of the naphthalene compounds it is probable that the dinitro-benzene naphthalene is more poisonous than the mono-nitro preparation.

Coming to the benzene group, mono-nitro-benzene when given by the mouth to cats does not seem to affect them at all; they rather seem to thrive and grow fat upon it. The dinitro-benzene is, on the other hand, exceedingly poisonous both to animals and men. The smallest lethal dose of dinitro-benzene for a cat of six pounds is 0·08 gramme if given by the mouth in one dose. In one instance a dose of 0·06 gramme of dinitro-benzene was not fatal but almost so. 1·2 grammes given to a cat by the mouth was fatal in about three hours. In the same ratio the lethal dose for a man of 10 stones would equal 1·82 grammes, but in all probability a smaller dose would be fatal. A lethal dose when divided up and given over a consecutive number of days does not kill—for instance, in a case where we gave 0·09 gramme of dinitro-benzene to a cat in doses of 0·04, 0·02, 0·01, and 0·02 gramme over a period of four days without causing death. It has been stated that dinitro-benzene when taken into the stomach shows a latent period before exhibiting its action. In our experience of experiments upon animals we find that if an animal survives a given dose of the poison for 24 hours it will recover entirely. This in all probability applies also to man. The vapour when inhaled acts immediately and the other preparations are readily absorbed if in a suitable solution. Hypodermically a dose of 0·04 gramme of dinitro-benzene was not fatal to a cat. From experiments with

[1] Provincial Medical Journal, Sept. 1st, 1892.
[2] Friedreich's Blatter fur gerichtliche Medicin, July and August, 1901.

trinitro-benzene we found that it was distinctly not very much more poisonous than dinitro-benzene. Mononitro-toluene is quite inert when administered to cats. Our personal experience of nitrotoluene is small, but on inquiries from the places where it is manufactured we were told that it was much too dangerous to work with—in fact, it was described as "simply hellish." The trinitro compound of toluene appears less poisonous that its dinitro-benzene equivalent. For comparison: 50 minims of a 1 per cent. solution of trinitro-benzene were hypodermically injected into a cat, causing death in a few hours. In another cat an injection of 60 minims of a 1 per cent. solution of trinitrotoluene produced only slight symptoms of cyanosis. The comparative harmlessness of trinitrotoluene is a very important fact, especially if, as we believe it does, it applies to man. Trinitrotoluene has been occasionally substituted for dinitro-benzene in some manufactories with great benefit to the workmen. If it can be found practically possible to replace the benzene compound by the toluene compound in all these industries it will be a very valuable step.

So much, then, for the comparative poisonous properties of naphthalene and the aromatic series of nitro compounds. These all refer to their action when introduced into the system either hypodermically or by the mouth. I (R. P W.) have long felt that dinitro-benzene, with which I am specially familiar, is very largely absorbed by the skin, but up till quite recently I could find no conclusive evidence that this substance was capable of being directly absorbed. The only experiment pointing to its possibility and probability occurred some years ago in the case of a German firm who were working with this substance. In order to eliminate the danger due to the inhalation of the vapour and the fine powder suspended in the air the following experiment was carried out and was narrated to me by an eye-witness. It consisted in applying to the men an oro-nasal mouthpiece fastened on to the face with an outlet and inlet tube carried to the outer air. This was fitted with valves through which the wearer inspired the fresh air and exhaled the vitiated breath. Under these circumstances it seemed that there was no possible chance of the dinitro-benzene vapour or powder obtaining access to the mouth or nose, but even with this precaution the incidence of sickness in the factory was not affected, and the only other channel by which the poison could get to the blood if this experiment was properly carried out must have been the skin. The possibility or impossibility of absorption by the human skin of drugs in any large quantity seems to be a very difficult problem, and Schäfer[3] says that literature extending over a century indicates that the production of impartial testimony on either the affirmative or negative side has proved of no little difficulty. He says that watery solutions are not absorbed. Krause maintained that ethereal and alcoholic solutions can be absorbed, but Fleisher, Ritter, and Winternitz, on the other hand, have stoutly denied the possibility. The application of oily solutions of certain drugs, veratrine, aconitine, potassium iodide, morphine, quinine, and salicylate of soda are probably quite inert, and the only exception appears to be mercurial ointment, which is undoubtedly absorbed. The fine globules of mercury in mercurial ointment are forced under the skin; the black oxide by the action of the chloride of sodium forms calomel, and this in the presence of oxygen is further changed into corrosive sublimate, which in this state is readily taken up into the system. This negative evidence made me somewhat sceptical as to the absorbability of the aromatic series of compounds, but when discussing the question with Mr. Orsman, our chemist, he said that on one occasion when working with toluelidine he accidentally spilled some on his fingers, and he narrated how he at once felt the physiological effects, such as faintness and giddiness, which he considered due to absorption. Another point is that workmen engaged in working amongst these higher fluid distillates are always very careful not to subject their hands to any prolonged immersion in them, fearing the results. I therefore asked Dr. John Hay of Liverpool to kindly undertake the following experiments for me.

CAT 1.—In the afternoon of Oct. 10th, 1900, the back of a female cat was carefully shaved whilst the animal was under an anæsthetic. An ointment composed of anhydrous wool fat, containing 25 per cent. dinitro-benzene, was applied to the skin over an area of three square inches. A piece of lint was laid over the anointed skin and the whole was covered and sealed with a gauze and collodion dressing. The next day, at 10 A.M., the cat was noticed to be somewhat stupid, but if startled in the slightest it jumped up in its cage and fell down stiff and rigid with its limbs extended. At 1 P.M. on this day the cat was dying. Its respirations were gasping, with long intervals of quiescence. The tongue was a livid blue, as were also all the mucous membranes. On opening the thorax after death the lungs were observed to be pale. The blood was collected. It was of a dull chocolate brown tint and coagulated readily. Spectroscopically it gave a dark absorption band corresponding with the meth-hæmoglobin band. On microscopical examination of a fresh specimen many of the red corpuscles appeared small and misshapen. It was not possible to find dinitro-benzene in either the blood or the urine.

As a criticism on the above experiment it might be advanced that the dinitro-benzene entered the circulation through cracks and small cuts almost unavoidably produced whilst trying to free the cat's back from its down. Therefore it was decided to shave the fur off three or four days before the anointing, so that any chance abrasion or cut might have time to heal.

CAT 2.—On Oct. 12th the fur was shaved off from the back of a fine large tabby cat, an anæsthetic being used to keep the animal quiet during shaving. On the next day the skin appeared quite clean and practically free from abrasions or cuts. On the 15th a 25 per cent. dinitro-benzene ointment was applied to an area of one and a quarter square inches and was carefully sealed with a collodion dressing as before. On the next day distinct but slight cyanosis of the mucous membrane was observed. The cat appeared to be otherwise normal. On the 19th the tongue and lips were markedly blue. The reflex excitability of the cat was noticed to be distinctly increased. On examination of the urine it was found to contain blood. The cat died on the next day whilst under an anæsthetic. On examining its blood spectroscopically absorption bands similar to the meth-hæmoglobin absorption bands were observed. The liver showed the naked-eye appearances of fatty degeneration.

CAT 3.—On Oct. 20th the back of a cat was shaved and any abrasions of the skin were allowed to heal. On the 23rd a piece of parchment three inches by one inch covered with 25 per cent. dinitro-benzene ointment was applied and sealed with collodion and gauze dressing. By the 24th the collodion and gauze were quite firmly fixed and it would have been quite impossible for the cat to have transferred any of the ointment into its month. The nose and the mucous membrane of the mouth and tongue were, however, pale and cyanosed. On the next day the nose and mucous membrane were still pale and bluish, but the cat otherwise appeared healthy. The cyanosis was still more marked on the 26th and there was quite a deep blue colour at the sides of the tongue. It was noticed to be salivating freely and there was a definite alteration in its voice. On this date an anæsthetic was administered and another strip of anointed parchment was sealed on to its back. On examining the blood it was found to be altered; irregular and refractile bodies were found apparently on the red corpuscles and the corpuscles were altered in shape. The corpuscles did not run into rouleaux as in normal blood. The pseudomethhæmoglobin absorption bands were distinctly present and the blood was definitely brown to the naked eye. At 1 P.M. on the 27th the cat looked distinctly worse; there was marked salivation, the nose was very pale, and the tongue was even more cyanosed. The cat was constantly crying out and lying curled up at the back of its cage. It was not resistive in any way and walked with some stiffness. There was distinct increase in the patellar reflex. The urine was highly discoloured, but there was no bile. The blood was difficult to obtain as the ear almost refused to bleed. It was chocolate brown. The alteration and irregularity in shape of the corpuscles was even more marked than on the 26th. Some of the small glittering bodies were seen floating free in the plasma. The cat was still alive on the 29th but looked very ill. The symptoms previously mentioned were aggravated, the gait was more reeling, and the cat showed a tendency to fall on to its side. There was distinct spasticity of the hind legs which were lifted high up as it walked. The patellar reflex were increased. On the 30th the cat was apparently dying, it was unable to walk and lay on its side. There was marked twitching of the head and paws. The patellar reflex was still increased. The cat was killed. Its blood was a very rich chocolate brown, and the pseudo meth-hæmoglobin band was demonstrated in it. The

[3] Text-book on Physiology, 1898.

urine was almost as dark as blood and contained both methæmoglobin and also oxyhæmoglobin. No dinitro-benzene could be demonstrated in the urine or in the blood. On making a microscopical examination of the kidneys they were found to be in a condition of inflammation, probably a toxic nephritis.

Dr. Hay gives the following account of an experiment performed upon himself: "On Oct. 8th, before dressing, I anointed my groins with a small portion of the 25 per cent. dinitro-benzene ointment, weight 400 milligrammes, containing 0·1 gramme of dinitro-benzene. I repeated this in the evening before going to bed. On the 9th I noticed very marked blueness about the lips and the finger nails; the tongue was also markedly blue. There were no subjective sensations. Before dressing I anointed my groins again with a similar quantity, but at 12 noon, owing to the cyanosis increasing in intensity, I carefully washed off all the ointment. At 1 P.M. the lips were a livid blue and the nails and skin generally of a deadly hue. The pulse was 100 to 120; it was regular in time and force and with its tension apparently raised and fuller. There was a feeling of fulness in the head and some throbbing headache, increased by movement. There was no obvious alteration in the urine. On cutting the thumb the blood appeared of a distinctly brown and darker colour than is normal. There was definite blurring of the oxyhæmoglobin bands, but no absorption bands with red. An examination of the urine gave negative results. Three ounces were sent to Dr. White. [The examination of the urine of Dr. Hay gave no reaction of the dinitro-benzene test. This is easily explained, as in no instance with which I (R. P. W.) am acquainted has so short an exposure to the dinitro-benzene poison ever given a reaction either in man or any animals.] At 6 P.M. the pulse was still full and bounding, from 96 to 98, regular in time and force. There were a rather metallic taste in the mouth and frontal and orbital headache, accompanied by a feeling of fulness, increased by movement, especially when running up and down stairs. Oxygen was inhaled for five minutes without any relief or alteration in the appearances of the lips and skin. The veins of the hands and the ears were full and engorged. A distinct tremor of the hands was present. On the 10th there was still some cyanosis of the lips, but not so marked as on the 9th. The headache had almost disappeared and there was no tremor. The pulse was still somewhat frequent. On the 11th my health was practically normal with the exception of a slight tendency to headache."

These experiments prove most conclusively the case with which dinitro-benzene when in close contact with the skin becomes absorbed. It is, however, common knowledge that the skin of a cat is thinner, more vascular, and less horny than that of a man, and therefore this personal experience is of great value. Facts like these, which are important, suggest the necessity of instituting experimental inquiry into the methods of operation of many of the industrial poisons—i.e., plumbism, phosphorism, mercurialism, &c.

Passing to the subject immediately before us, it would appear that given the manipulation of a certain strength of poison a corresponding amount of sickness will ensue and that the incidence of sickness among those manufacturing explosives varies with the proportion of dinitro-benzene. Handling, grinding, beating, and otherwise manipulating pure dinitro-benzene are at all times most risky and dangerous to the worker. If the process involves any possible personal contact the strictest precautions must under such circumstances be carried out. With a less percentage of dinitro-benzene in the material manipulated we have often associated a marked amount of sickness; for instance, when working with 14 parts of dinitro-benzene to 100 parts of the other ingredients our experience has given a ratio of sickness varying from 5 to 40 per cent. of the workmen immediately employed. The amount of sickness is largely affected by atmospheric conditions, such as temperature and moisture, also by the hours of work. Our experience is that with percentages under 10 and preserving the ordinary strict precautions acute cases should be non-existent. In the early days of association with the use of dinitro-benzene the dinitro was very largely contaminated with the mono-nitro-benzene and also probably with some of the toluene compounds. In recent years, with a much more carefully prepared dinitro-benzene, but with almost the same percentage of it, the incidence of sickness has been markedly lessened. The following consideration may partially explain this fact. Pure dinitro-benzene consists of colourless crystals, but through impurities the commercial dinitro-benzene is often of a darkened colour, especially when mixed with mono-nitro-benzene, and under these circumstances the men frequently object and will even refuse to work.

In a previous part of this paper it has been shown that the mono-nitro-benzene is practically inocuous to animals; it is probably also inocuous to man and if so we can only suppose that the liquid greasy mono-nitro-benzene may assist in a material degree to render the dinitro-benzene more adhesive and thereby more easily absorbed through the skin. The mono-nitro-benzene acts as a powerful solvent of dinitro-benzene just as do the fats and oils. Acting upon this thought 0·1 gramme of chemically pure dinitro-benzene crystals alone was applied to the skin of a cat sealed as in the previous manner, yet after three days no alteration had taken place in the animal. In a second experiment 0·1 gramme of chemically pure dinitro-benzene dissolved in mono-nitro-benzene was applied to the skin of another cat at the same time. In this latter cat after the same number of days' exposure to the poison cyanosis became visible. The area of exposure of both of these poisons to the skin was identical—viz., a space of two square inches. These experiments emphasise the necessity there is of some solvent to enable the poison to be carried through the skin, for had the same dose of poison been suspended in an animal fat symptoms of poison would have been very marked. It also rather suggests that the numerous oxidising ingredients associated with the dinitro-benzene in the manufacture of high explosives may have some influence upon absorption. It must not be forgotten that in the practical working of these substances particles alight upon the body where they undergo friction and pressure and are moulded into the coil and sebaceous ducts. Recently it has been proved that not only the sebaceous but also the coil glands excrete a certain amount of oil which acts as a ready solvent to the dinitro-benzene. The presence of oil on the hands, where there are no sebaceous glands, has an important bearing upon the necessity of frequent washings of all exposed surfaces of the skin. No part of the skin, except absolutely necessary, should be left uncovered by the special clothing ordered. The hair of the head should be cut close and the face have as little hair on as possible. Caps should be tight-fitting and cover as much as can be conveniently arranged.

In conclusion, we should like to advert to the necessity which exists for instituting a Government laboratory in which experiments such as we have carried out can be performed instead of leaving these points to the energy and enthusiasm of private workers.

ON THE PROPHYLAXIS OF CARCINOMA.

BY C. B. KEETLEY, F.R.C.S. ENG.,
SURGEON TO THE WEST LONDON HOSPITAL.

IF we grant that the *materies morbi* of carcinoma is most likely a living organism, the situations generally attacked by carcinoma suggest (1) that its specific cause flourishes in either the secretions or the cells of the skin-glands, including the mammary gland—e.g., milk, butter, cheese, sebaceous material, and sweat; and (2) that before milk, butter, and cheese are allowed to rest in contact with weakened parts—e.g., ulcerations—either inside or outside the body, such articles should be sterilised by heat, while the secretions of the glands of the skin should be kept away by cleanliness. It is assumed that everyone will agree that chronic inflammations of parts liable to primary cancer should be cured, if possible, and that ulcerations and cicatrices in such localities, unless there are predominating reasons to the contrary, should be removed.

Almost all primary carcinomata are seated in the breast, the alimentary canal, the skin, and the uterus, or in canals, ducts, and glands subsidiary to those parts or directly opening into them—e.g., the larynx, liver, pancreas, vagina, and urethra. The majority of those which have come under my own observation have occurred in either the breast or in the alimentary canal (including in the latter the lips and the rectum).

Reflecting on what medium would be a likely or possible carrier of the essential cause of cancer (whatever that may be) to two such different localities as the breast and any

segment of the alimentary canal—e.g., the œsophagus or the pylorus—I first thought of water, which is taken by all into the stomach as drink and used by many to the breast as a cleansing medium. The possible responsibility of water is not to be lightly denied, but there are several considerations which tend to exculpate it. 1. Some sufferers from cancer of the breast had not been in the habit of applying water to it. 2. Those who had, generally used soap as well, and the use of soap and water followed by drying, would be rather more likely to remove disease germs than to implant them. 3. Water is universally used as food, but there are countries in which carcinoma of the alimentary canal is said to be very rare and others where it is very common. At the same time, and of course, it must be acknowledged that a disease-germ may exist in the water of one place, country, or continent, and be absent in another.

Now, there is another fluid very much more specially associated with both the alimentary canal and the breast than is water—viz., milk. Milk (including its products, butter and cheese) is universally used as food in such countries as England and Germany, where cancer of the stomach is common, and is, I am informed by my friend Sir William Kinsey, comparatively little used in India and Ceylon, where cancer of the stomach is very rare. An objector, while granting that a very large proportion of carcinomata (I am speaking, of course, of primary ones) affect either the breast or the alimentary canal, might point out that still a large percentage remain which are located in either the uterus or the skin. With regard to the skin it must be remembered that the breast is itself a skin-gland, and it seems to me probable that an organism which can live and multiply best in milk might yet survive and get along very well in the secretions of the sweat-glands or of the sebaceous follicles. Nor is it necessary, in order to support the view which I am calling attention to, to assume that the *materies morbi* lives mainly in the milk itself. Its habitat may be the epithelial cells which line the gland, the milk still being the carrier of the organism from the breast to elsewhere. Indeed, the great characteristic of cancerous growth—viz., the enormous multiplication of epithelial cells—suggests strongly that they are the habitat of the cancer organism. Further, the difficulty of cultivating cancer-germs in dead media points to their multiplying best in living cells and offers a possible explanation of the apparently much less frequency of direct infection from one individual to another of cancer than of tubercle. The fact that millions of persons take milk and its products as food and yet escape cancer is of no more significance than that millions of such people escape tubercle.

Cancer seems slow to infect any plain surface of skin or mucous membrane free from folds or depressions where its cause can lodge for a time undisturbed. It is rare in the urethra, which is free from transverse folds and frequently washed out by the urine. It is only, in exceptional instances, even of advanced cancer of the breast that "cancer en cuirasse" occurs, and that may be due to secondary infection *viâ* the subcutaneous lymphatics. The commonest seats of primary carcinoma in the alimentary canal are obviously parts where food may lodge or adhere—e.g., the lips, the margins and under-surface of the tongue, the tonsils, the gullet behind the larynx and again where it is crossed by a bronchus, the lesser curvature of the stomach near to the pylorus, the pylorus itself, the ileo-cæcal region, the sigmoid flexure, the rectum, any part of the alimentary canal which has been the seat of chronic ulceration or of cicatricial contraction, and the lower portion of the large bowel in those curious cases of multiple polypi, which would of course tend to delay the passage of solid fæces, just as hillocks and trees check the downward course of snow on a hillside. All these facts seem to me to point to the probability of the cancer-germ being conveyed by food, but requiring time and rest to establish itself, and taking advantage of ulcerated and otherwise injured spots.

There are, it must be acknowledged, primary carcinomata arising in places which one would scarcely think of as accessible to milk and its products. There are, e.g., the laryngeal, the pancreatic, the hepatic, and, above all, the numerous uterine cancers. The larynx, the lungs, the pancreatic duct, and the bile ducts open directly or indirectly into the alimentary canal; and the uterus opens by way of a wide canal to the surface of the body. But it is possible that primary cancerous infection is sometimes conveyed *viâ* the lymphatics, just as secondary is, no tumour forming at the seat of entry, and that it then rests and multiplies at such epithelial-lined cavity as it may reach, perishing in situations where there is no epithelium. A secondary carcinoma implies that not only the cancer-germ but the epithelium in which it lives and the growth of which it so greatly excites, has been conveyed from one part of the body to another. Carcinoma of deep-lying organs, such as the brain and structures like bone, are, it is well known, generally, if not always, secondary.

While it is easy to explain the infection of a part of the alimentary tract by food it is not so easy to explain the infection of the mammary gland. The milk-ducts are obviously possible, indeed probable, channels for the conveyance of germs from the nipple to deeper parts. It seems to me that a not unlikely manner in which the nipple, or some eczematous spot on it, is infected is by the sufferer's fingers. It is true that the fingers are seldom dipped into milk and that only those of the lower classes often handle cheese. Butter, however, comes frequently into contact with the fingers of nearly all women, and it is not considered sufficiently polluting to require that the hands shall be carefully washed afterwards. When considering the possibility of water being the cancer-carrying medium I thought perhaps the nipple was infected by the linen, but linen and cotton undergo a treatment at the laundry calculated to kill any disease essence. Flannel, however, is treated more gently; still, even flannel, though not exposed to heat, is freely rubbed with soap. The mention of flannel reminds me that lanoline—a fat obtained from lamb's wool and now a favourite application to the skin—might easily prove a favourable medium for the protection, if not for the culture, of any organism which lives in sweat-glands or milk follicles.

With regard to the frequent occurrence of cancer on the hands of workers in petroleum, on the scrotum of the chimney-sweep, the lip of the pipe-smoker, and in the lungs of the cobalt-miner, it does not seem very likely that the cancer or any other living organism would flourish in paraffin, in carbon, in smoke, or in an ore which is a mixture of a metal with sulphur and arsenic. Such substances probably merely predispose to cancer by, so to speak, preparing the human soil, sometimes by causing a chronic eczema.

I should be exceedingly grateful to any of the readers of THE LANCET who would, either through its columns or privately, inform me of facts bearing on the possible guilt or innocence of milk, butter, or cheese in the etiology of carcinoma. I hope I shall be excused for asking gentlemen who may respond to this request (1) that the distinction between carcinoma and sarcoma shall always be carefully remembered; and (2) that any references that they may make to published sources of information shall be exact enough for verification. In particular, I think, the experience of medical men who have practised in foreign countries might prove instructive. But I am afraid that there are now few regions, not even the most remote islands, where butter and cheese are not imported, even if cows are not kept. I have endeavoured, not very successfully, to collect facts from veterinary friends. I have to thank Mr. Gresswell of Louth for a kind effort to assist and I hope that now the attention of able observers like him is called to the subject ultimately much may be learnt from them.

If my remarks should lead anyone to avoid uncooked milk, butter, and cheese, and if also it should prove in the end that those articles of diet have nothing to do with the conveyance of cancer, I think it will matter little. The danger of contracting tuberculosis is already sufficient to justify such an attitude towards those foods. It is not as if I had, e.g., suggested in an alarmist manner and without sufficient proof that cancer was caused by the practice of clothing the lower extremities, especially in winter, and that all adult males over 45 years of age would wear, at their peril, anything heavier than a short gauze-skirt. The Lord Chancellor, all Bishops, and all Fellows of the Colleges of Physicians not of Highland origin might prefer death to such indignity. But to suggest to people that they should refrain from swallowing unsterilised milk and milk-products is not an unwise thing on grounds some of which are fully acknowledged.

Throughout this paper where the word "cancer" is used it is as a synonym for carcinoma. And it is assumed (1) that carcinoma depends upon some living materies morbi; and (2) that all life can be destroyed by a moderate degree of heat applied for a reasonable time. I am afraid that both these assumptions might be disputed, but they are so far generally granted that this would not be a suitable place to

recapitulate the arguments in support of them. The following rules for the prophylaxis of cancer might, therefore, be laid down safely, because even if they did not gain the end immediately desired they would attain others scarcely less valuable, just as the sons in the fable, though with all their digging they found no buried gold in the field bequeathed to them, yet gained health and rich crops.

1. Chronic inflammations, suppurations, and especially ulcerations, should not be neglected or allowed to drift. Still better, commencing troubles of the kind should be treated promptly and not allowed to become chronic. With regard to ulcerations, especially of the alimentary canal, and with regard, also, to suppurations, especially of the breast, it is to be remembered that the cicatrices left by their cure are liable to become the seat of malignant infection. It is therefore doubly desirable to cure such ulcerations and suppurations in their earliest stage, so that little or no cicatricial tissue may remain and in cases where the arguments for and against the removal, as opposed to the simple healing of an ulcer, are otherwise evenly balanced, the indication to remove a place especially liable to cancer should prompt one to excision.

2. Well-known sources of irritation of mucous membranes and of skin should be avoided—e.g., smoking when any trace of soreness is discovered in the mouth, on the tongue, or on the lips, and the habitual use of strong condiments and spices. Workers in special trades, such as chimney-sweeping, should lose no time in having the smallest cutaneous rashes or other trouble promptly cured. Among milk-products cheese is itself an irritant to mucous membranes. Some syphilitics with a tendency to ulceration of the tongue notice that a fresh attack frequently follows eating cheese.

3. A woman should allow nothing to come in contact with her nipples except smooth, clean linen, cotton, or silk, and the soap and warm water with which she washes herself. After being washed the nipples should be gently and thoroughly dried. She should not touch them with her hands or fingers at all. During lactation the nipple should be cleaned and gently dried after each act of suckling and then protected with a dry and clean covering. The nipple should not be merely withdrawn from the infant's mouth and pushed back under the mother's clothes. If wool be worn it should be sterilised by heat.

4. Whoever takes as food uncooked and unsterilised milk, butter, and cheese should recognise that he does so at the risk of introducing into his system the germs of disease, and that among these disease essences, so to call them, may be that of carcinoma.

Before any reader condemns me for publishing the above hypotheses without having submitted them to experimental proof he should bear in mind that much time and probably the coöperation of many observers would be required for such a work. Moreover, antiseptic surgery was at first based on hypotheses which were not only then unproved but which even to some extent—e.g., in the amount of blame attached to the air—were erroneous.

Grosvenor-street, W.

A CASE OF SPONTANEOUS GANGRENE IN AN INFANT.

BY T. ARMSTRONG BOWES, M.D. CANTAB.

ON March 25th, 1901, a vigorous primipara was delivered of a full-term living male child. He was to all appearances in perfect health, though a little thin, and took the breast well. About April 7th he had thrush, from which he made a satisfactory recovery. On the 10th the child was noticed to be peevish and had lost flesh. He would not take the breast, but beyond this nothing amiss could be discovered and his temperature was normal. The umbilicus was perfectly healed. On the morning of the 11th a small vesicle was noticed in the centre of the back in the lower lumbar region, and when first seen in the evening this had become a small pustule, not larger than a hempseed, with a slightly raised, rather dusky red area of the size of a florin surrounding it. Careful inquiry failed to elicit any history of traumatism. By the following morning the pustule had burst, leaving a small circular ulcer, and the red area had spread considerably upwards but not so much downwards. In the evening the redness round the ulcer had become of a deep mulberry colour, which was unaltered by pressure. The red zone had increased and in addition the umbilicus and some of the finger-tips presented small red excoriated areas. During the night the ulcer discharged a considerable quantity of thin, slightly sanguineous, odourless serum. On the morning of the 13th the almost black area extended from one inch round the seat of the original pustule. The surrounding dusky area had reached half way up the shoulder blades and the circulation in it was extremely slow. By the evening the inner darker area was three inches in diameter, the skin commencing to peel off in the centre. The child had been very fretful all day, but had taken his food. The outer dusky area now reached to the upper level of the scapula. On the morning of the 14th a photograph of the child was taken. It showed a dark irregular patch of considerable extent at the site of the original lesion where the skin was actually sloughing. From this extended a black and dark purplish area upwards to the scapulæ, outwards to the flanks, and downwards over the sacrum, gradually shading off to lighter dusky red to involve the neck, the posterior portions of the shoulders, the outer portions of the chest and abdomen, the whole of the buttocks, and the outer part of the thighs. The photograph showed the lighter unaffected skin of the upper arm and lower portion of the thigh towards the knee, but it failed to portray the variety in colour and the gradually shading of the skin involved in the affection. The superficial abdominal veins were of a light claret colour and the abdominal viscera showed as a dusky background to the dull, lifeless-looking, inelastic pallid skin of the abdominal walls. The child gradually sank and died the same evening. Throughout the whole duration of the case the temperature never rose above normal and at death the red excoriated areas on the fingers and at the umbilicus had not become deeper in colour and had only increased very slightly in extent. No post-mortem examination was permitted.

The absence of traumatism or of any previous disease or cachexia points to the above case as one of spontaneous gangrene. According to Keating[1] gangrene in infants, excluding noma and cancrum oris, occurs either spontaneously or as a concomitant or sequel to various diseases, such as pemphigus, syphilis, varicella, measles, erysipelas, &c. The spontaneous form is stated to occur at any age up to late childhood and although sometimes affecting children to all appearances perfectly healthy is more usual in those suffering from debility or cachexia. It may attack any portion of the body, the onset being severe with raised temperature, becoming depressed as the disease advances. It may be symmetrical or commence synchronously at several different foci, or as in the above-narrated case start from one isolated spot. The prognosis is very grave. The only suggested cause is spasm of the arterioles of the affected area, and it appears doubtful as to whether this be of central or of peripheral origin, though changes in the spinal cord have been described in some cases wherein the disease has been symmetrical. The cause of the cases following the diseases above enumerated is suggested as a local infection by the microbes of the disease in the presence of a lowered vitality of the subject.

The literature relating to the disease is scanty and after careful search I have been able to find records of four cases only which bear a resemblance to the one I have detailed. Reed[2] describes a case of gangrene of the leg, thigh, and foot in an infant 14 days old, commencing below and outside the knee, without any evidence of injury; no embolism or thrombosis of the femoral artery was found at the post-mortem examination. From the description it is probable that the case was not seen till the gangrene was well-established and there is no evidence as to how the disease began or advanced in its earlier stages. Manley[3] describes an ante-partum gangrene of the legs and thighs in a child living at birth and surviving for 24 hours after, but unfortunately there was no post-mortem examination of this case, in which the skin was actually peeling from the buttocks when the child was born. Norman[3] records a case of idiopathic gangrenous erysipelas in which the initial lesion was a blister resembling a burn on the left forearm and from which the arm, chest, and greater portion of the back were all involved in a gangrenous process within three days. And, lastly, the *Medical Press and*

[1] Encyclopædia of Diseases of Children, vol. ii., Part I.
[2] Brit. Med. Jour., vol. i., 1881, p. 639.
[3] THE LANCET, Dec. 15th, 1888, p. 1173.

Circular[1] gives an account of a case exhibiting numerous foci of invasion, commencing as small papules, followed by blisters, and resulting in ulcerations reaching the diameter of half-a-crown, the duration of the case being 11 days from commencement to a fatal termination.

The case I have described appears worthy of record from its apparent rarity, from the absence of any severe initial symptoms, the fact that the temperature was never raised above normal, and from the extreme rapidity with which so large an area of skin was involved, the whole duration from commencement to the fatal issue being only three and a half days.

Herne Bay, Kent.

HOSPITAL CAMP SANITATION IN SOUTH AFRICA.

BY BURTON A. NICOL, M.R.C.S. ENG., L.R.C.P. LOND.,
LATE CIVIL SURGEON ATTACHED TO THE ROYAL ARMY MEDICAL CORPS, NATAL FIELD FORCE.

IN my experience as civil surgeon on the staff of two of the large general hospitals in South Africa I was much impressed with the large amount of sickness prevalent among the orderlies on the hospital staff. As these men are to some extent trained to recognition of the risks of infection and to methods of cleanliness and disinfection one would not expect a very large incidence of disease among them in spite of their exposure to so many risks. They have also, at least in my experience, availed themselves of the advantages of inoculation against enteric fever in a much greater proportion than the ordinary soldier, so that if this has been a benefit it ought to have helped towards reducing disease in their ranks. I have no figures to quote from, but I know that at Estcourt during the first few months of the work of No. 7 General Hospital the nursing of the sick was hampered greatly by the amount of sickness prevalent among the orderlies. To such an extent was this so that in the first four months about one-third of the orderlies who were originally attached to the hospital staff had passed through the wards; most of them had enteric fever, a smaller number suffering from dysentery or diarrhœa of a dysenteric type. At Newcastle (No. 14 General Hospital) there was also a considerable amount of sickness among the orderlies. At first it was not so marked as at Estcourt, but it should be pointed out that the proportion of fever cases in the wards was much smaller here and the disease apparently was of a milder type. At Estcourt the cases were practically all enteric fever and there was a fairly large proportion of severe cases.

My attention was thus drawn to the general sanitary condition of the camps and to the precautions which were being taken to prevent the spread of contagion from patients to those whose duty it was to look after them and restore them to health. At No. 14 General Hospital at Newcastle printed rules were circulated among wardmasters and orderlies as to their duties with regard to the management of infectious cases, the treatment of excreta, &c. The following is a summary of the observances laid down for their guidance in these regulations and of the general methods employed. Kaffirs at both hospitals were employed as ground scavengers and kept the camp beautifully clean, picking up every scrap of paper, wood, and other refuse. These men, however, would have nothing to do with the handling of excreta, so that this was all dealt with by Indians specially employed for the purpose. It was very fortunate that these men were available, as our men were thus able to devote themselves entirely to their nursing duties. When an orderly had placed the night-stool, chamber-pot, or bed-pan containing an enteric or dysenteric stool outside the tent one of these ward Indians at once picked it up and carried it to the enteric fever enclosure where it was emptied into the excreta buckets. It was then washed out with 1 in 800 corrosive sublimate solution, some izal solution (1 in 20) was placed in it, and the utensil was at once returned to the ward. The excreta buckets were kept covered and when three-fourths full were taken to the incinerator, where the contents were boiled down to dryness, mixed with sawdust, and then burnt. The urine was supposed to be treated in the same way, but I am afraid that careless orderlies were frequently in the habit of emptying urinals into slop-buckets, which were in turn emptied into separate sanitary handcarts (large zinc drums on wheels). It thus often escaped thorough disinfection.

The soiled linen was always removed in red handcarts from the wards, being first sprinkled with carbolic solution, 1 in 20; it was taken to the enteric fever enclosure, placed in boilers and boiled for 20 minutes, dried, and then taken to the foul linen store to be sent to the wash. All mattresses, pillows, and clothing that would have been destroyed by boiling were disinfected in Thresh's steam disinfector. Excreta and all linen from dysentery wards were treated in exactly the same way as if coming from an enteric fever ward. All bed-pans, night-stools, urinals, and slop-pails belonging to enteric fever wards were marked with the letter "E" in red paint and kept apart in every possible way from similar utensils in other parts of the hospital. They were always kept outside the wards at one particular corner of the tent or marquee. The Indians employed in this sanitary work were used only for removing excreta, slops, and rubbish from the wards, they were not employed on any ordinary fatigue work, such as carrying water, food, &c., or cleansing utensils for food or drink. They were on duty at all times, so that at night the removal of stools from the precincts of the wards was carried out as promptly as in the day. The enteric fever enclosure was in charge of a non-commissioned officer and he was responsible for the carrying out of all details in connexion with the work of disinfection. He was assisted in his work by one European and three Indians. The floor of this enclosure was of cement; it was cleaned daily and washed with sublimate solution 1 in 800. Every ward was supplied with a bottle of carbolic solution, 1 in 20, no special bottle was, however, provided and a brandy or other similar bottle was invariably used. This was dangerous, as the wards were not provided with any receptacle where it might be safely and conveniently kept. Orderlies were instructed after handling patients or infected articles and before meals to wash their hands in carbolic solution, 1 in 20, and to use a nail-brush. This order was almost invariably neglected; the deficiencies in basins, towels, and water undoubtedly discouraged the careful observance of this rule. Separate dinner tins and hot-water trays were kept for enteric fever wards and were all marked with the letter "E."

It will thus be seen that a fairly comprehensive scheme was arranged for the proper treatment and disposal of refuse and infected material and for the prevention as far as possible of the dissemination of disease. Many other points were neglected, and it is possible that a closer attention to detail would have improved upon the general results obtained. No general sanitary officer was appointed to exercise supervision over the details laid down in the scheme. This work was divided among the various civil surgeons and Royal Army Medical Corps subalterns, each one acting in turn as sanitary officer for one week; the work was certainly not done as thoroughly as would have been the case had it been the duty of one man to superintend closely all the details of sanitary work in the neighbourhood of the camp. The orderlies were very inexperienced in hospital work—the majority of them could not be made to understand the gravity of the risks they were running by carelessness with regard to personal cleanliness. They were being constantly changed from ward to ward, so that before a man had time to benefit by the instructions of the nurse and medical officer he was removed to non-fever wards and another novice supplied in his place. They were frequently put on night duty at the end of what was always a long and heavy day's work. This must have acted disadvantageously on their general health, increasing their risks of infection by lowering their resistance to disease. Orderlies, whose work lay entirely in non-fever wards during the day, or even in the office, would be sent into a fever ward for night duty. The disadvantages of such a proceeding to both orderly and patients are very obvious.

Great attention was paid to apparent cleanliness, to such an extent that hardly a straw or burnt match end could be seen in the neighbourhood of the camp; slop water that had been used for washing enteric fever patients was, however, frequently thrown out over the ground instead of being carried away. I have seen a trained nurse do this, and the orderlies frequently did it. It is a very difficult practice to detect and check. Convalescent patients and orderlies were

[1] Medical Press and Circular, vol. ii., 1888.

in the habit of micturating on the ground after sunset in portions of the camp when they were likely to be unobserved instead of going to the latrine. The ground was thus fouled in many ways, though apparently clean.

There was a scarcity of ward utensils, drinking-cups, tumblers, &c., so that these articles were frequently used in common. No proper arrangements were ever made for storing milk, beef-tea, &c., in the wards. Dishes, forks, knives, spoons, &c., were often not so thoroughly cleansed as they should have been, as this work was done in the wards or immediately outside, which was objectionable. The milk for fever cases was served out three times a day, a pint at a time. This was placed in each patient's bowl on his bedside table; the bowl thus served the double purpose of a drinking-cup and a basin for storing the milk. The consequence of this was that thirsty patients either helped themselves to a large quantity at a time and then waited without food for many hours until the next pint came, or if at all typhoidal neglected it, and it became the food-supply and a death-trap for all the flies in the ward. Patients convalescent from enteric fever and dysentery often used latrines in common with other patients. Efforts were made to prevent this. The urine from enteric fever patients undoubtedly often escaped the thorough disinfection it should have received.

The greatest defect of all in this camp was certainly a very deficient water-supply. The town of Newcastle had for some years found their water-supply insufficient for their own needs and were considering various schemes for improving the supply. With a large general hospital of 520 beds and a very large number of troops quartered in this district the deficiency became suddenly acute. To make things worse the year 1900 was rather dry and the rains came very late in the season. Pipes were laid on over the hospital camp and connected with the town supply; they were, however, usually empty. Water could sometimes be obtained from the pipes for about an hour early in the morning; later in the day it had almost invariably to be carried from a standard at the railway station, which was situated at a slightly lower level than the hospital. A great deal of water was carted in water-carts drawn by mules or oxen. This was unsatisfactory as the carts were of the wooden barrel on wheels type; they were difficult to keep sweet and clean. They were at one time discovered to be very foul. The men complained that the tea was unpalatable and alleged that the water gave them diarrhœa. The deficiency was so serious that no one could understand why the site was not condemned at once for hospital uses, for it was quite impossible to keep patients in that condition of cleanliness which everyone agrees is essential in a hospital, especially where there was a large proportion of enteric fever cases. A regulation existed that all patients who were sufficiently well should receive a hot bath before admission to the ward. They could not have even a cold bath; the carrying of such water as was used from the carts to the wards greatly increased the amount of work done by the orderlies, and must have discouraged its free use. Nice wash-houses had been erected for the use of convalescent patients, they were filled with rows of bowls with water laid on for each bowl. I never saw water in them except in the very early morning and sometimes not then.

The quantity of soda-water obtainable was limited by the deficiency of water in the town, the supply being a purely local one. We could not obtain it for our fever cases in the quantity which we thought necessary, the amounts were again and again cut down. It was noticed that although the hospital could not get the quantity of aerated water it wanted the hotels in the town were never short. The water used by orderlies and patients for drinking purposes was neither filtered nor boiled, that used in the wards was kept in canvas water-coolers outside the tents, to which the dust readily obtained access. The water-supply at Estcourt, I may say, was very good.

The sites were, I believe, usually well chosen. The hospital at Estcourt was in a particularly good position on the slope of a small hill. It was near the railway, so that a special siding was constructed by which means the hospital trains were run right to the bottom of the camp. At Newcastle, however, we were occupying a site which had been used for some months by one of the stationary hospitals before our arrival; it was on a low piece of ground near the river and was much too close to the town. The consequence was that flies were much more troublesome than at Estcourt; the camp, though near the station, had no siding of its own and its position in other respects was undesirable.

I feel certain that a more careful selection of hospital sites might have been made in certain cases, and with a closer supervision over some of the details of sanitary work would have saved a great deal of the sickness among the hospital staff. In this way both directly and indirectly the efficiency of the hospitals would have been increased. The authorities did not seem to recognise the fact that a continued use of one particular site was disadvantageous from the consequent fouling of the ground which was being continually carried on when a large number of enteric fever cases were brought together. The great advantage of a canvas hospital is its mobility; this advantage is lost where one site is persistently used for many months in spite of obvious and very serious defects. Some light is also thrown upon the value of the investigations made by the recent Hospital Commission in their flying tour through South Africa when it is remembered that Newcastle was one of the towns visited by them and witnesses were there examined. No comment, so far as I know, has been made by them upon its water-supply, and the hospital, I believe, still exists upon the same site.

ON THE

BEHAVIOUR OF OXY-HÆMOGLOBIN, CARBONIC-OXIDE-HÆMOGLOBIN, METHÆMOGLOBIN, AND CERTAIN OF THEIR DERIVATIVES, IN THE MAGNETIC FIELD,

WITH A PRELIMINARY NOTE ON THE ELECTROLYSIS OF THE HÆMOGLOBIN COMPOUNDS.[1]

BY ARTHUR GAMGEE, M.D. EDIN., F.R.S.,
EMERITUS PROFESSOR OF PHYSIOLOGY IN THE OWENS COLLEGE, VICTORIA UNIVERSITY.

I.—THE OBSERVATIONS OF FARADAY AND PLÜCKER ON THE DIAMAGNETIC PROPERTIES OF THE BLOOD.

IN the course of his investigations on magnetism and diamagnetism, read before the Royal Society in the year 1845, Faraday[2] found that, notwithstanding the iron which its colouring matter contains, the blood is a diamagnetic liquid. "I was much impressed," he remarked, "by the fact that blood was not magnetic, nor any of the specimens tried of red muscular fibre of beef or mutton. This was the more striking because, as will be seen hereafter, iron is *always* and in almost all states magnetic. But in respect to this point it may be observed that the ordinary magnetic property of matter and this new property are in their efforts opposed to each other; and that when this property is strong it may overcome a very slight degree of ordinary magnetic force, just as also a certain amount of magnetic property may oppose and effectually hide the presence of this force."[3] Faraday further found the blood to behave like all the constituent tissues of animal bodies which he investigated and was led to state that "if a man could be suspended with sufficient delicacy, after the manner of Dufay, and placed in the magnetic field he would point equatorially, for all the substances of which he is formed, including the blood, possess this property."[4] De la Rive and Brunner,[5] later, suspending a bound-up frog between the poles of an electro-magnet, observed it to assume an equatorial position, thus realising Faraday's prediction that a complex animal organism must be diamagnetic in accordance with the properties of its constituent tissues and of the water which enters so largely into their composition. Shortly after the publication of Faraday's researches on diamagnetism Professor Plücker[6] of Bonn, in a well-known paper which

[1] A paper read before the Royal Society on June 20th, 1901.

[2] On New Magnetic Actions and on the Magnetic Condition of all Matter, Philosophical Transactions, 1846, Part I.

[3] Experimental Researches in Electricity, vol. iii., 1855, p. 36, para. 2285.

[4] Ibid., para. 2291.

[5] De la Rive and Brunner's researches are only known to me at second hand from the account given of them in Valentin's "Grundriss der Physiologie" (4 Auflage, 1855, p. 507), where an engraving is reproduced in which a bound-up frog is shown placed between the poles of the electro-magnet.

[6] Experimental Untersuchungen über die Wirkung der Magnete auf gasförmige und tropfbare Flüssigkeiten. Refer to the heading, "Über das magnetische und diamagnetische Verhalten der tropfbarflüssigen Körper," in "Poggendorff's Annalen der Physik und Chemie," vol. lxxiii., 1848, para. 42, p. 575.

appeared in 1848, after describing the characteristic behaviour of magnetic and diamagnetic liquids contained in watch-glasses placed upon and between the poles of powerful electro-magnets, gave the results of his observations on the diamagnetic properties of the blood. He not only confirmed, by experimenting on the blood of the frog, of man, and of the ox, the accuracy of Faraday's statements, but by employing the microscope in his observations he was able to show that the blood corpuscles are more strongly diamagnetic than the liquid in which they float.[7]

II.—OBJECTS OF THE PRESENT INVESTIGATION.

At a time when all facts bearing on the physical properties and the chemical relations and structure of the blood-colouring matter are rightly claiming the attention of many of the leading workers in physiological chemistry it appeared to me very desirable to examine the magnetic properties of the crystalline blood-colouring matter itself, in the condition of utmost available purity, and, whatever the results might be, to extend the inquiry to its leading iron-containing derivatives.

Although Faraday had shown that the blood is diamagnetic and Plücker that the blood corpuscles are more decidedly diamagnetic than the liquid in which they float, it was yet conceivable, though improbable, that the iron-containg hæmoglobin would prove to be a feebly magnetic body, of which the true magnetic behaviour was concealed by the substances with which it is associated in the blood corpuscles. Whether hæmoglobin proved to be magnetic or diamagnetic it obviously would be of great interest to examine the magnetic properties of the iron-containing substances which the blood-colouring matter yields when it is decomposed by acids in the presence of oxygen, and in the event of a difference between the magnetic behaviour of the mother-substance and its derivatives to push the inquiry in a direction likely to lead to the discovery of the cause of the discrepancy. In pursuance of such an object I have been led to inquire whether the pure blood-colouring matter in aqueous solution is an electrolyte, and having discovered that it is one to examine the results of its electrolysis. On this part of my inquiry the statements which I have to make in this paper are strictly preliminary, and, except in the first most interesting particular that oxy-hæmoglobin and CO-hæmoglobin separate in the first instance from their aqueous solutions when these are subjected to very feeble currents, are to be considered as liable to correction by future more extended work.

III.—THE ELECTRO-MAGNET EMPLOYED IN THE PRESENT RESEARCH.

The electro-magnet employed was constructed by Ladd many years ago and is sufficiently powerful to be employed for observations on the rotation of the plane of polarisation of light. I had it fitted with an accurately closing glass case and with adequate arrangements for the proper suspension of the bodies under examination. I am not possessed of instruments which would enable me to determine directly the strength of the magnetic field employed in my several sets of experiments. The Rev. F. J. Jervis-Smith, F.R.S., Millard Lecturer in Experimental Mechanics in the University of Oxford, to whom I had the pleasure of showing my experiments, had the great kindness to make careful measurements of the coils and has practically reconstructed an electro-magnet similar in dimensions to mine, with the same windings, and of which the iron core derived from a similar instrument made by Ladd was probably identical in properties to that in my electro-magnet. Using Professor Rowland's method for determining the field he obtained the following results. Intensity of the earth's horizontal magnetic component at Oxford = 0·18. Distance between faces of pole pieces, three centimetres. Current in ampères, 2·4, 3·3, 4·2; magnetic field in C.G.S. units, 516, 700, 870. Probably it is safe as an approximate estimate to assume that my field was about 1000 C.G.S. units with a current of five ampères.

All the fundamental experiments on the magnetic properties of oxy-hæmoglobin, CO-hæmoglobin, and methæmoglobin were made by suspending cakes of the dried crystalline bodies by means of one or a few fibres of silk between the poles, thus avoiding the disturbing influence of glass tubes, however feebly magnetic. In the case of hæmin the substance was similarly examined, in the first instance by suspending as far as possible rectangular cakes formed by the aggregation of crystals. In the case of hæmatin the substance, being in an amorphous pulverulent condition, was necessarily examined in glass tubes, but its intensely magnetic properties prevented in its case, as in that of hæmin, any difficulties arising from the very feebly magnetic properties of the glass tube containing it.

IV.—OXY-HÆMOGLOBIN A STRONGLY DIAMAGNETIC BODY.

The oxy-hæmoglobin employed in the present research was prepared by myself during the past winter from the blood of the horse by employing substantially the method of Hoppe-Seyler. In some cases the blood corpuscles were separated from the defibrinated blood by long-continued centrifugalising; generally, however, the defibrinated blood was mixed with 10 times its volume of a mixture made by diluting 10 volumes of saturated NaCl solution with 90 volumes of distilled water and the corpuscles were then separated by means of the centrifuge.

In either case the magma of corpuscles was treated with a small quantity of distilled water and pure ether, and the mixture having been thoroughly agitated in a stoppered separating funnel, the aqueous solution of the blood-colouring matter was separated and filtered into flasks surrounded with ice, and subsequently treated with one-fourth of its volume of pure absolute alcohol at a temperature of −5° C., and the mixture placed in an ice chamber for 24 or 36 hours. The oxy-hæmoglobin which crystallised was separated from its mother-liquor by means of the centrifuge. The crystalline mass was repeatedly washed with distilled water at 0° C. and the washed crystals treated with distilled water at 30° C.; the saturated solution was rapidly centrifugalised, rapidly filtered into flasks surrounded by ice and salt, and the hæmoglobin caused to crystallise by the addition of absolute alcohol under the prolonged influence of cold. After being crystallised three times the oxy-hæmoglobin was collected on filters and the moist mass of microscopic crystals drained. The pasty crystalline mass was dried *in vacuo* over sulphuric acid at a temperature which never exceeded 5° C.

Behaviour in the magnetic field.—An irregular mass of three times crystallised oxy-hæmoglobin dried *in vacuo*, weighing 1·088 grammes, and measuring 18 millimetres in length, 13 millimetres in depth, and 13 millimetres in breadth, was suspended by a couple of fibres of unspun silk between the poles of the magnet, the distance between these being 20 millimetres; the mass was made to rest in the axial position before the current was passed through the coils.

Three cells of an accumulator were employed; on closing the key the mass of hæmoglobin instantly assumed the equatorial position. The experiment was repeated with masses of hæmoglobin prepared at various times and re-crystallised from one to three times, and weighing from 0·5 to 2 grammes, and invariably they were found to be powerfully diamagnetic.

A specimen of oxy-hæmoglobin of the horse, kindly prepared for me under the direction of Professor Hofmeister in the Chemico-Physiological Laboratory of the University of Strasburg by the ammonium-sulphate method, and which had been five times crystallised, proved to be as powerfully diamagnetic as the oxy-hæmoglobin prepared by Hoppe-Seyler's method.

V.—CARBONIC-OXIDE-HÆMOGLOBIN IS, LIKE OXY-HÆMOGLOBIN, STRONGLY DIAMAGNETIC.

Mode of preparation.—The carbonic oxy-hæmoglobin employed was prepared by saturating a concentrated solution of twice crystallised oxy-hæmoglobin with pure CO, and then crystallising the CO compound by the addition of absolute alcohol and exposure to a temperature of −5—10° C.

Behaviour in the magnetic field.—A nearly rectangular prismatic mass of CO-hæmoglobin which had been dried *in vacuo*, and which weighed 0·642 gramme, and of which the length was 17 millimetres, the breadth 6·5 millimetres, and the depth 13 millimetres, was brought into the axial position between the poles of the electro-magnet, the distance between these being 18 millimetres. On passing the current from three cells of an accumulator through the coils of the electro-magnet the mass instantly assumed the equatorial position. The experiment was repeated with different

[7] In 1874, Dr. R. C. Shettle, in a paper read before the Royal Society (Proceedings of the Royal Society, vol. xxiii., 1875, pp. 116-120), gave the results of experiments which had led him to the conclusion that arterial blood is paramagnetic as compared with venous blood, which is diamagnetic, the assumed difference in magnetic behaviour being explained by the author as to the paramagnetic properties of the oxygen absorbed by venous blood. In reference to these statements the only observation which I have to make, on the basis of my own work, is that they are entirely erroneous.

specimens of CO-hæmoglobin and invariably with the same result.

In the absence of all data as to the diamagnetic moment of either oxy- or CO-hæmoglobin it is impossible to state whether these bodies differ in any degree in respect to their behaviour in the magnetic field. Working carefully but merely qualitatively it would appear, however, that their behaviour in the magnetic field is identical.

VI.—METHÆMOGLOBIN IS, LIKE OXY-HÆMOGLOBIN, STRONGLY DIAMAGNETIC.

The substance was prepared by adding to a saturated solution of twice crystallised oxy-hæmoglobin of the horse a few drops of solution of ferricyanide of potassium until the characteristic change in colour and in the spectrum indicated the complete conversion into methæmoglobin. The solution was cooled to − 5°C., treated with one-fourth of its volume of absolute alcohol at − 10°C., and the mixture placed in ice and salt for a period of 36 hours. The crystalline methæmoglobin which separated was then washed with repeated quantities of ice-cold water, collected on a filter, drained, and dried *in vacuo* at a temperature not exceeding 5°C. Experiments with lumps of this substance varying in weight between 0·3 and 1·0 gramme showed it to be apparently as diamagnetic as oxy-hæmoglobin.

VII.—HÆMATIN AND ACETHÆMIN (HÆMIN)—INTENSELY MAGNETIC SUBSTANCES.

Preliminary remarks.—The more recent analysis of Jaquet, Zinoffsky, and Hüfner have led to the conclusion that, at any rate in the horse, the dog, the ox, and the hen, there exists a remarkable constancy in the proportion of the iron which exists in hæmoglobin (0·335 per cent.).[8] If it be assumed that one molecule of hæmoglobin contains one atom of iron, the molecular weight of the hæmoglobin of the dog, the horse, the ox, and the hen would be 16,669, a result which concords admirably with the volume of oxygen and carbonic oxide which can enter into combination with hæmoglobin on the assumption (first of all advanced by Lothar Meyer) that one molecule of hæmoglobin can combine either with a molecule of oxygen or of carbonic oxide. The empirical formula for the hæmoglobin of the dog calculated by Jaquet from his analysis is probably very near the truth—namely, $C_{738}H_{1203}N_{188}S_3FeO_{214}$.

Why should hæmoglobin possess so enormously high a molecular weight? The question suggested itself to Bunge who has furnished us with a reason which is eminently suggestive. "The enormous size of the hæmoglobin molecule," says this writer, "finds a teleological explanation, if we consider that iron is eight times as heavy as water. A compound of iron which would float easily along with the blood current through the vessels could only be secured by the iron being taken up by so large an organic molecule."

When oxy-hæmoglobin is subjected to the action of acids and alkalies it splits up with great ease into a coloured iron-containing body and into an albuminous body (or mixture of such bodies). The former, to which the name of "hæmatin" has been given, is a derivative of the molecule group existing in the blood-colouring matter, upon which its colour, its spectroscopic characters, and its physiological properties doubtless depend, though it is a derivative which is unquestionably a product of oxidation, and in no sense represents the real hæmochromogen. According to Hoppe-Seyler the empirical formula of hæmatin is $C_{34}H_{32}O_5N_4Fe$, whilst according to Nencki its composition is represented by the formula $C_{32}H_{32}O_4N_4Fe$.

When the decomposition of oxy-hæmoglobin is effected by glacial acetic acid in the presence of alkaline chlorides a perfectly crystalline substance separates which has been hitherto known under the name of *hæmin*, but which we shall now, following the suggestion of Nencki, term *acethæmin*. This body was looked upon by Hoppe-Seyler as a hydrochloride of hæmatin; the recent researches of Nencki and Zaleski have shown that acethæmin contains 8·59 of iron, and possesses a composition represented by the formula $C_{34}H_{33}O_6N_4ClFe$; it contains an acetyl group, and both the acetyl and chlorine in it are linked to the iron. When this body is dissolved in weak solutions of sodium hydrate in the cold the chlorine and acetyl are separated, and on neutralisation with acids hæmatin of composition $C_{32}H_{32}O_4N_4Fe$ is obtained. It is with these two coloured iron-containing decomposition products of hæmoglobin, hæmatin and acethæmin, that my observations have been carried out. Before referring to these in detail I wish again to insist that these oxidation-products in no sense represent the unaltered iron-containing group to which the blood-colouring matter owes its physiological properties. As Hoppe-Seyler showed, when hæmoglobin is decomposed by acids and alkalies *in the absence of all traces of oxygen*, hæmatin is never formed, but a colouring matter which possesses the same spectrum as that which had previously been described by Stokes as that of reduced hæmatin. This substance Hoppe-Seyler called hæmochromogen, and he expressed the opinion that it constitutes the veritable coloured radical upon which the physiological properties of hæmoglobin depend. The experimental facts advanced by Hoppe-Seyler have always appeared to me absolutely inadequate to warrant this hypothesis, which, however, is most suggestive and demands a thorough and a new investigation.

A. *Magnetic properties of acethæmin.*—The acethæmin employed in the present research was prepared by me from ox's blood by the method of Schalfijew. Some of the specimens were purified by re-crystallisation from glacial acetic acid, others by dissolving in a chloroformic solution of pure quinine, and subsequently adding to the filtrate hot glacial acetic acid, saturated with NaCl.[9] My first observations were made with a block of agglomerated hæmin crystals weighing 0·6455 gramme and measuring 26 millimetres in greatest length, 18 millimetres in height, and six millimetres in thickness; this block was suspended by two fibres of silk, so as to occupy the equatorial position in reference to the pole pieces of the magnet. The distance between the poles being 30 millimetres, on passing a current from three accumulator cells through the coils the mass instantly assumed the axial position and was strongly attracted to the nearest pole, the suspending silk fibres being sensibly deflected from their original vertical position. Even when the poles of the electro-magnet were 40 millimetres apart the mass instantly set in an axial position when the current was passed. The observations were repeated with numerous specimens of hæmin and always with similar results.

B. *Magnetic properties of hæmatin.*—The hæmatin employed in these researches was prepared by dissolving re-crystallised and perfectly pure acethæmin in a weak solution of chemically pure sodium hydrate at ordinary temperatures, and precipitating the filtered solution without delay by neutralising with dilute sulphuric acid. The precipitated hæmatin was thoroughly washed, drained, and dried. In consequence of its absolutely amorphous pulverulent character my magnetic observations on this body were conducted with the aid of tubes of very feebly magnetic glass, containing from 0·1 to 0·4 of pure hæmatin. The intensely magnetic character of hæmatin was as easily demonstrated as had been that of acethæmin.

VIII.—THE ELECTROLYSIS OF SOLUTIONS OF PURE OXY-HÆMOGLOBIN AND CO-HÆMOGLOBIN.

Preliminary observations.—The remarkably definite results of my research, which had shown that oxy- and CO-hæmoglobin are decidedly diamagnetic substances, whilst their iron-containing derivatives, acethæmin and hæmatin, are powerfully magnetic, naturally led me to speculate on the possible cause of these differences. It appeared to me that if hæmoglobin were found to be an electrolyte, apart from the interest which would attach to the discovery of the fact, a study of the products of its electrolysis might throw great light upon the question. Do we not know, for instance, that those compounds in which iron and other magnetic metals are present in electro-negative radicals are diamagnetic?[10]

In spite of my having made great efforts to purify as completely as possible the substances with which I worked it is questionable whether their purity was sufficient for electrolytic researches. The experiments which I have yet made on this division of my subject must therefore be looked upon as strictly preliminary, and I hope in the course of the coming winter to extend them greatly, making use of compounds of hæmoglobin which have been subjected to far

[8] For a discussion of all the more recent analysis of hæmoglobin see my article on "Hæmoglobin" in Schäfer's "Text-book of Physiology," p. 199 et seq.

[9] Refer to my previously quoted article in Schäfer's "Text-book of Physiology," and to Nencki and Zaleski's recent article, "Untersuchungen über den Blutfarbstoff. I. Ueber die Aether des Hämins," Zeitschrift für Physiologische Chemie, vol. xxx., 1900, p. 384 et seq.

[10] Miller: The Elements of Chemistry, Part I., "Chemical Physics," London, 1856, p. 422; H. du Bois: Propriétés Magnétiques de la Matière Pondérable, Rapports Présentés au Congrès Internationale de Physique Réunis à Paris en 1900, Paris, 1901, tome ii., p. 460.

more frequent re-crystallisation. In the course of these experiments, beside studying the proximate products of electrolysis with currents of different strength and potential, I intend to determine by the methods of Kohlrausch and Ostwald, with as great accuracy as possible, the specific conductivities of solutions of oxy- and CO-hæmoglobin.

The following are the results of my electrolytic experiments which I wish at present to place on record. Firstly, when solutions of pure oxy-hæmoglobin are subjected to electrolysis at a temperature of about 15° C. between platinum electrodes, from 12 to 16 cells of a carbon zinc bichromate battery being employed, and the current passing through the liquid being from three to five milliampères, a rapid subsidence of the colouring matter takes place, the upper layers of the solution becoming perfectly colourless. The depositing colouring matter retains the spectroscopic character of oxy-hæmoglobin and when stirred with it is absolutely and almost instantaneously soluble in the liquid from which it has separated. Exactly the same result occurs in the case of carbonic-oxide-hæmoglobin. Secondly, on continuing the passage of the current through the solution in which precipitation has occurred secondary reactions occur, gas is developed both at the anode and cathode, and in many cases a dirty white-brown deposit forms at the cathode. Thirdly, under conditions of strength of current and potential which were not determined with sufficient accuracy and which I have not yet been able to reproduce at will the solutions of oxy-hæmoglobin and CO-hæmoglobin have, under the long-continued action of the current, on several occasions deposited at the anode an insoluble red colouring matter containing both the albuminous and the iron-containing residues of hæmoglobin. In the case of CO-hæmoglobin the compound deposited has presented the peculiar colour of CO-hæmoglobin.

IX.—General Conclusions.

The following are the conclusions to which I have been led by my experiments:—1. The blood-colouring matter, oxy-hæmoglobin, as well as carbonic-oxide hæmoglobin and methæmoglobin, are decidedly diamagnetic bodies. 2. The iron-containing derivatives hæmatin and acethæmin are powerfully magnetic bodies. The differences in magnetic behaviour between the blood-colouring matter and acethæmin and hæmatin point to the profound transformation which occurs in the hæmoglobin molecule when it is decomposed in the presence of oxygen. 3. The preliminary study of the electrolysis of oxy-hæmoglobin and CO-hæmoglobin renders it probable that in the blood-colouring matter the iron-containing group, on which its physiological properties depend, is (or is contained in) an electro-negative radical; according to analogy the iron in such a compound would possess diamagnetic and not magnetic properties.

In conclusion, I beg to acknowledge my indebtedness to Professor von Bunge of Basel, to Professor Franz Hofmeister of Strasburg, and to Dr. von Ehrenberg, the technical director of the chemical factory of Messrs. Merck of Darmstadt, for their great courtesy and kindness in placing at my disposal preparations of hæmoglobin prepared by themselves or under their direction.

Montreux, Switzerland.

TONSILLOTOMY RASH.[1]

By WYATT WINGRAVE, M.D. Durh.,

PHYSICIAN AND PATHOLOGIST TO THE CENTRAL LONDON THROAT AND EAR HOSPITAL; CORRESPONDING FELLOW, AMERICAN LARYNGOLOGICAL ASSOCIATION.

THE occurrence of a skin eruption following operations, often referred to as "surgical rash," is familiar to all of us, but its association with the removal of tonsils and adenoids is, perhaps, not so widely recognised but that a few notes may be of interest. Recent experience of several instances prompted a reference to my hospital and private records which has revealed 34 cases in the course of seven years. Although relatively to the large number of operations this is but a small percentage, I feel from recent experience that they represent but a portion only of those actually occurring and that a thorough and systematic inquiry would afford evidence of greater prevalence. It is the custom at the Central London Throat and Ear Hospital for all patients who are operated upon in the extern department to attend after a week's interval for examination; and in several instances the parent has reported that the child was kept at home because it had a rash which was thought to be "something catching." Subsequent investigation, however, in most cases proved its innocence of specificity. In other cases the rash was still visible on the patient, and unattended by constitutional symptoms. Of the 34 cases, three (which were in-patients) proved to be scarlet fever, while one developed diphtheria. The remainder were simple non-specific cases.

With regard to the character of the rash, the eruption generally appears on the second or third day, either papular, roseolar, or erythematous in type. It most frequently attacks the neck, the chest, and the abdomen, sometimes extending to the face and the extremities. The earliest appearance noted is the day following operation, the latest one is the sixth day. Its duration is generally two or three days but may extend to five days. After reaching its maximum intensity it rapidly disappears without desquamation but is sometimes associated with intense itching. It may occur at any age; the youngest was 14 months and the oldest was 23 years.

With regard to sex, excluding the specific cases, 20 were females and 10 were males. As a rule there is but slight constitutional disturbance and the child does not appear to be any the worse. In those cases which I was able personally to investigate the temperature was only increased from 1° to 2° F. Although the incidence of so innocent a complication in our most common operation may not be unfamiliar to many of us I am not aware of any published references having been made to the subject. It is, however, a matter of some importance both to us and to the patient, since foreknowledge will help our diagnosis and prevent any undue precipitancy in forming the graver estimate of its nature. The occurrence of scarlet fever in three cases and diphtheria in one has, however, an important practical bearing insomuch that the removal of actively inflamed tonsils is advocated by many surgeons.[2] There are distinct advantages in this practice since the prominence of an inflamed tonsil affords facilities to the guillotine which disappear on subsidence of the inflammation and there do not appear to be any serious disadvantages. In the absence of any anæsthetic the operation certainly may be more painful, but it most effectually relieves the temporary angina and the removal is thorough. It may thus happen that tonsillotomy is undertaken in the early stage of recognised or unrecognised scarlet fever, diphtheria, or other specific fever, and it is maintained by many eminent specialists that not only no additional risk is involved, but that it is an expedient course to take.[3] This may be so if tonsils alone are removed, but one may reasonably doubt the expediency when a large crop of adenoids requires removal in addition, since the formation of so extensive a denuded surface is not unattended with risk.

The incidence of a rash upon any solution of continuity of tissue, operative or accidental, is well known and has been well discussed, but there are a few points associated with this particular operation which may throw some light upon its pathology. Examination of the blood during the week following the operation has with few exceptions afforded me evidence of an increase in the number of the monocular white corpuscles. This leucocytosis, which rarely lasts beyond the tenth day, may be more than coincidental, yet it is hardly surprising after so great a disturbance of lymphoid structures. The removal of tonsils and adenoids likewise affords a very large area for absorption of toxic matter. The rash may also be interpreted as one due to drug intolerance, since most of the cases were taking the usual mixture of sodium salicylate and potassium bromide. Still, whatever its pathology may be the knowledge that a rash often follows tonsillotomy and that it is not necessarily specific may be reassuring to practitioners experiencing the phenomenon for the first time.

Since the presentation of this note eight further cases have been observed and are included in the numbers given.

Devonshire-street, W.

[1] A paper read at the annual meeting of the American Laryngological Association.

[2] Lennox Browne: Diseases of the Nose and Throat, fifth edition, p. 346.

[3] Ibid., p. 523.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF CYSTINURIA IN WHICH CADAVERIN WAS FOUND IN THE URINE.

BY P. J. CAMMIDGE, M.R.C.S. ENG., L.R.C.P. LOND.,
BACTERIOLOGIST TO THE WEST RIDING COUNTY COUNCIL.

THE published cases of cystinuria, and especially those in which diamines have been found in the urine, are so few that the following is worth recording.

The patient was a girl, aged 12 years, who was seen in consultation by Dr. T. Churton of Leeds in January, 1900. In the course of a routine examination he unexpectedly found cystin crystals in the urine, and knowing that I was interested in such cases he kindly handed the specimen over to me. The urine which I received on Jan. 27th was rather pale in colour but did not smell of sulphuretted hydrogen[1] as is sometimes the case; the specific gravity was 1026 and the reaction was faintly alkaline; no albumin or sugar could be detected. Under the microscope a few six-sided plates of cystin with some triple phosphate crystals were seen. Diamines were sought for by the method of Udranszky and Baumann.[2] The whole available quantity of urine, 90 cubic centimetres, was vigorously shaken with three cubic centimetres of benzoyl chloride and 10 cubic centimetres of 10 per cent. sodium hydrate solution until the smell of the benzoyl chloride had disappeared. After standing, the precipitated diamines were separated from the phosphates, &c., which had also come down, by treatment with warm alcohol and subsequent re-precipitation with distilled water several times. Finally, a deposit of small white crystals was obtained which separated out from a perfectly clear mother liquid; this was filtered off, dried, and weighed. The dry weight was found to be 0·024 gramme. Microscopically the crystals presented the appearance of needles and narrow plates similar to those formed by benzoyl cadaverin; they were insoluble in ether but readily soluble in alcohol and strong sulphuric acid; the melting point was 129° to 130° C., characters which agree with those of benzoyl cadaverin. An attempt to prepare the picrate and double platinum salt was not successful, but this is not surprising considering the small amount of material; the yield was also too small to allow of an ultimate analysis being made. It can hardly be doubted, however, that the substance isolated from the urine was a diamine and that it consisted in all probability of pure cadaverin (pentamethylene-diamine, $C_5H_{14}N_2$).

Unfortunately, I have not been able to obtain any further specimens of the urine or a sample of the fæces, so that I am unable to say whether the excretion of cadaverin was a constant phenomenon or whether a diamine could be obtained from the solid excreta or not. The case is of some interest, however, not only because it adds one more to the 110 recorded cases of cystinuria, but also because it occurred in a female, and of the known cases only 30 are mentioned as being of that sex; further, the presence of cadaverin in a comparatively large amount is noteworthy, for, including Udranszky and Baumann's original case, this substance has been isolated from the urine in but five other cases of cystinuria, and one of these I examined with Dr. A. E. Garrod in 1899.[3]

Wakefield.

NOTE CONCERNING A SIGN OFTEN ASSOCIATED WITH EARLY PHTHISIS.

BY WALKER OVEREND, M.A., M.D. OXON.,
LATE SENIOR PHYSICIAN TO THE TOTTENHAM HOSPITAL AND RADCLIFFE FELLOW.

IN many cases of pulmonary phthisis, but more particularly in those which follow the ordinary sequence of initial deposition and consolidation within the upper lobes accompanied by dulness in the supra-clavicular and supraspinal areas, a number of venous varicosities one-third to two-thirds of an inch in length may often be observed beneath the skin in the neighbourhood of the spines of the seventh cervical and three upper dorsal vertebræ. They appear early and may become very conspicuous. At times they become apparent only after stretching the skin laterally. Local pain is occasionally felt, also slight œdema may be found over these vertebral spines. The following is an example.

The patient, aged 26 years, had suffered from cough since the beginning of April, 1901. It was probably due to influenza primarily. A note taken in the middle of May reads thus: "At the left posterior apex crepitant râles followed by slight expiratory murmur, in the lower lobe a click succeeds each inspiration; at the right posterior apex coarse râles audible, many rhonchi in lower lobe. Numerous varices visible around the spines of three upper dorsal; they occur, although sparingly, all over the left back as low as the angle of left scapula." A description of the venous ramifications of this region may serve to explain their origin. The venous network (dorsi-spinal) which lies around the dorsal spines, also furnishes branches which pass forwards between the transverse processes to join the vertebral veins in the neck and intercostal veins in the chest. The vertebral veins emerge from the transverse processes in the sixth cervical and terminate in the innominate. The veins of the upper two or three left intercostal spaces unite near the bodies of the vertebræ to form the left superior intercostal vein, which passes across the arch of the aorta to enter the left vena innominata, and the left bronchial vein opens into it. The right superior intercostal vein enters the vena azygos major. Bearing in mind these venous communications, the process by which any obstruction or deposition, be it tuberculous or not, begins to hamper the return of venous blood and leads to the formation of these spinal varices, becomes more intelligible. The obstruction may consist of enlarged and congested bronchial glands in the root of the lung, pressing upon the left superior intercostal vein during its passage across the arch of the aorta, or a thickened pleura may affect injuriously the course of the vein or any of its tributaries and lead to distal engorgement. It is important to recall the fact that the upper lobes lie tightly fixed within the three upper ribs and that they reach from the sixth cervical vertebra as far down as the third dorsal spine. The varices occur at first just within this area, between the spines and the edge of the shoulder-blade. Frequent coughing and the horizontal posture in bed, no doubt, will participate in and facilitate their production. Patients suffering from emphysema, asthma, and bronchitis, exhibit varicosities as well, but these are scattered over the chest, both front and back, and along the margins of the lower ribs, diffusely and indiscriminately. When the signs of obstruction clear the dilatations disappear, but the process requires some months. As the patient increases in weight and the fat layer beneath the skin becomes thicker, they would naturally appear less visible. In young children—five to ten years of age—who are rapidly growing or convalescing after influenza and measles, the veins are often marked and auscultation within the same region usually reveals some abnormality, tubular breathing, prolongation of inspiration, enfeebled breath-sounds, or creaking sounds. Such children are extremely vulnerable. They should be well fed and clothed, periodically weighed, and kept under observation for months.

The sign appears to me to be useful, and I have not come across it in any of the text-books and special treatises. The attention of the practitioner is at once arrested by it and the condition of the posterior apices of the upper and lower lobes determined. The presence of auscultatory signs within this dorsal area, combined with wasting and myoidema, I believe, render the diagnosis of early phthisis, even in the absence of sputum and bacilli, practically conclusive.

Clacton-on-Sea.

A CASE OF RELAPSING DIPHTHERIA.

BY H. C. BEASLEY, L.R.C.P., L.M., L.R.C.S. IREL.

REFERRING to the annotation in THE LANCET[1] on the observations of Dr. Barbier and Dr. Lobligeois regarding certain cases of "relapsing diphtheria" in the Hôpital Trousseau, Paris, the accompanying notes of a case may be of interest.

I saw the patient, a girl, aged seven years, on July 11th

[1] Journal of Pathology and Bacteriology, February, 1900.
[2] Zeitschrift für Physiologische Chemie, 1899, Band xiii., S. 562.
[3] Journal of Pathology and Bacteriology, loc. cit.

[1] THE LANCET, August 3rd, 1901, p. 299.

when she was suffering from typical diphtheria affecting the nasal chambers which were covered with membrane and from which exuded a bloody discharge, and also the tonsils and uvula which were coated with membrane; this was the third day of the disease. I injected 2000 units of anti-diphtheritic serum, this being followed by a fall in temperature. On July 12th, as the membrane was extending to the larynx, I gave a further injection of 4000 units of the serum (Parke, Davis, and Co.), which brought down the temperature to normal, but the membrane continuing to extend further down the larynx and the child being in imminent danger of asphyxia, on the 13th I performed tracheotomy. The case after this proceeded so favourably that no further injection of serum seemed to me to be indicated and on the 18th I removed the tube for an hour, but the nervousness of the patient necessitated its reintroduction until the following day when it was entirely dispensed with. At this date a careful examination of the throat revealed no sign of any remaining membrane and the case progressed so favourably that on the 24th the patient had so far advanced that I did not see her again until I was sent for on the 29th, when her mother said that she had been sick the previous day and seemed very bad again. On examination of the patient the tracheotomy wound had almost entirely healed. The temperature had run up to 103° F. and was accompanied by an extremely rapid pulse, and the child looked very ill. On inspection of the throat a fresh patch of membrane of about the size of a shilling had appeared on the left tonsil. Judging from the sickness of the previous day, this was the second day of a fresh invasion and I at once injected 4000 units of the serum with a most gratifying result, the temperature and pulse rate falling to normal by the next morning. The patch of membrane had begun to get smaller, and from this date convalescence was uninterrupted.

Though no bacteriological examination was made I think the clinical course of the case was such as to render the diagnosis certain. The points of interest to be noted are as follows: 1. The short interval of protection afforded by the injection of 6000 units of serum, as well as by the antitoxin which we may presume to have developed in the blood of the child herself in the primary attack; this might possibly be explained by the first two injections having been given so late that the serum had only power to check, but not completely to overcome, its antagonist. 2. The value of the serum as evidenced by the remission of most of the symptoms excepting the spread of the membrane in the primary attack, without which I believe the tracheotomy would have been a failure, and its success when given at an earlier date and in a larger dose on the relapse taking place. 3. The importance of giving a large and early injection of serum.

Ashford, Middlesex.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

ST. THOMAS'S HOSPITAL.

A CASE OF ACUTE INTESTINAL OBSTRUCTION RECURRING SEVEN TIMES IN FIVE YEARS AND RELIEVED SIX TIMES BY OPERATION.

(Successively under the care of Mr. G. H. MAKINS, Mr. W. H. BATTLE, Mr. C. A. BALLANCE, and Mr. EDRED M. CORNER.)

THE most striking point about strangulated umbilical hernia is the very high mortality with which it is accompanied and with this is associated a great tendency to recurrence after "radical cure." The cause of this liability to return is to be found in the condition of the abdominal wall in those adults liable to this form of hernia. It is soft, stretched, and loaded with fat, and can offer no resistance to any dilating force; while any suture applied to effect a permanent closure of the hernial opening cannot hold together the softened tissues. The following case is very remarkable for the large number of times—four in all—in which strangulation of an umbilical hernia occurred. On three subsequent occasions the bowel was obstructed owing to adhesions which had formed after the operations for the relief of the strangulated hernia. For the notes of the case we are indebted to Mr. Corner.

The patient, a woman, aged 53 years, had been married for 38 years and was the mother of 13 children, eight of whom were living. The patient was very fat and bronchitic, but otherwise there was no history of illness. Her occupation was that of a monthly nurse and she had noticed an umbilical hernia for five years. Her first admission was on August 29th, 1896. She had had strangulation for two days and was operated on by Mr. Makins. Omentum and three knuckles of small gut were found in the sac. The former was ligatured with silk and removed; the latter were returned to the abdomen. Owing to the adhesions the sac was only partially removed. A radical cure was performed, salmon gut sutures being employed; the skin was sewn with horsehair. She was discharged on Oct. 3rd, after being 34 days in hospital. The patient was now free from trouble for four months when in a violent fit of coughing the hernia appeared again.

On the second admission (Feb. 2nd, 1897) the hernia had recurred and been strangulated for one day. On admission there was a very small tender lump to the right of the scar of the former operation. Operation was performed by Mr. Makins. A knuckle of small gut was found in the sac and returned. A radical cure was performed as above. She was discharged on Feb. 26th, having been in hospital 24 days. The wound was quite sound. The hernia recurred about one year after this operation, but caused little trouble for 15 months, when it became strangulated for the third time. The interval between her admissions to the hospital was two years and three months.

On the third admission (June 2nd, 1899) there had been acute obstruction for two days, preceded by some chronic obstruction for some time. The recurrent hernia was of large size. Operation was performed by Mr. Battle. The sac was found to contain omentum and small gut. The former was ligatured with silk and removed; the latter was returned to the abdomen. Owing to the bad condition of the patient and the numerous adhesions, especially one to the left of the hernia, the sac was only partially removed and the layers were sutured hurriedly. The wound healed by first intention, but the hernia returned before the patient left the hospital. She was discharged on June 27th, after a residence of 25 days. The patient now experienced repeated attacks of pain in the hernia, which became strangulated for the fourth time, three weeks after her discharge.

On the fourth admission (July 19th, 1899) the hernia had been strangulated for seven hours. Operation was performed by Mr. Battle. The sac was found to contain transverse colon, omentum, and small gut. The omentum was ligatured and removed and the gut returned to the abdomen. The adhesions were more numerous now than they had been previously; the one to the left of the umbilicus, which had done so much to prevent the completion of the third operation, was found to consist of the omentum and transverse colon, adherent to the abdominal parietes. A radical cure was performed, silk sutures being used throughout, and the wound drained. The patient was discharged with a stitch sinus on August 12th. The duration of residence was 24 days. The stitch sinus persisted and she suffered from recurring attacks of pain and occasional vomiting. Fifteen months after her discharge symptoms of strangulation again occurred.

On the fifth admission (Nov. 5th, 1901) the hernia was recurrent but small and reducible. Operation was performed by Mr. Ballance. The sac was found to contain omentum and transverse colon which was strangulated by a band of adhesions. The band was divided and the gut was reduced, the omentum being ligatured and removed. A radical cure was performed with salmon gut sutures. She was discharged on Dec. 15th. The duration of residence was 40 days. The patient was never free from abdominal pain and discomfort and presented herself at the hospital in four months' time with symptoms of intestinal obstruction. She had from time to time had attacks of pain, vomiting, and constipation of short duration.

On the sixth admission (April 8th, 1901) there had been acute obstruction for two days and subacute for a week.

Operation was performed by Mr. Corner. An incision was made through the right rectus. The small bowel was found to be distended. A large number of adhesions were broken down. The chief obstructing agent was doubtless due to the re-formation of the large adhesion encountered by Mr. Battle at the third and fourth operations and which now consisted of transverse colon, the remains of the omentum, and small intestine and was fixed to the anterior abdominal wall. The layers were sutured with salmon gut, as were also the edges of a small recurrent hernia at the lower angle of the old scar. The old stitch sinuses (two) were scraped out, but they discharged copiously and infected the lower angle of the wound. The patient was discharged on May 8th. The duration of residence was 30 days. The patient always had pain in the abdomen and a month after her discharge a purpuric eruption broke out on her legs and a week later on the arms and abdomen. Symptoms of intestinal obstruction occurred for the seventh time, seven weeks after she left the hospital.

On the seventh admission (July 19th, 1901) there had been obstruction for 16 hours. Her abdomen was distended and most tender in the upper half. Operation was performed by Mr. Corner. An incision was made through the right rectus, but the adhesions were too dense to enable anything to be found except collapsed small gut. A further incision was made through the left rectus and the collapsed small gut was followed until the upper coil of the jejunum was found to be extremely thick and œdematous. The exact seat of the obstruction could not be ascertained owing to adhesions but was evidently very high in the small intestine; and the patient's condition forbade further operative treatment. The abdomen was closed after the transverse colon was brought out, as it had been opened in separating an adhesion. Death occurred from unrelieved obstruction in 24 hours (July 20th). Unfortunately, the body decomposed so rapidly that its diffluent condition prevented a post-mortem examination.

Remarks by Mr. CORNER.—The above case is interesting as illustrating the frequent recurrences of intestinal obstruction, which was six times relieved by operation and at the seventh the obstruction could not be found. The woman was first admitted in 1896 and Mr. Makins operated; the second operation was done in 1897, also by Mr. Makins; the third and fourth operations were performed in 1899 by Mr. Battle; the fifth operation in 1900 by Mr. Ballance; and the sixth and seventh operations in 1901 by myself. On examining the literature of intestinal obstruction and strangulated hernia I was unable to find any case which could show such an extensive clinical record. The first four admissions were for strangulated umbilical hernia and the last three were for obstruction by adhesions. Strangulated hernia has the lowest mortality of all forms of intestinal obstruction, though strangulated umbilical and ventral herniæ have a higher death-rate than either the inguinal or femoral varieties. The mortality is so high in the former variety of hernia because of their large size, multiplicity of adhesions, difficulty in reducing the contents, the fat, flabby condition of the patient, and so forth. No case of femoral or inguinal hernia has been admitted to St. Thomas's Hospital in which strangulation has occurred and been relieved four times. Out of 61 operations during 1891–99 for strangulated umbilical hernia only four were performed on recurrent cases. Recurrences after "radical cure" for umbilical and ventral hernia must be fairly frequent. Out of 81 operations for "radical cure" six were recurrent cases, of which four were strangulated and two had intestinal obstruction caused by adhesions. Hence recurrent cases seem only to return when the urgent symptoms of strangulation arise.

The second variety of obstruction from which this woman suffered was caused by adhesions and is one which bears a high mortality. Three operations were performed for this; two were successful and at the third the seat of obstruction could not be reached. It was noticed in this case that the obstructing adhesions were chiefly derived from the ligatured ends left after the omentum had been removed, which subsequently gave rise to a mass consisting of the remains of the omentum, the transverse colon and small gut all becoming adherent to the anterior abdominal wall. The other adhesions did little harm except being the most likely cause of various colicky pains. This form of obstruction is commoner in umbilical and ventral than in femoral or inguinal hernia, and must especially be borne in mind in those of long standing, recurrence, or irreducibility. The hernia may even, as sometimes happens, be easily reducible. From the date of the first operation to that of her death five years elapsed.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

A CASE OF INTESTINAL OBSTRUCTION AND PERITONITIS FROM GANGRENOUS MECKEL'S DIVERTICULUM; RECOVERY.

(Under the care of Mr. GEORGE WHERRY.)

IT has been estimated that Meckel's diverticulum exists in about 3 per cent. of all persons. Even when it is recognised that in many of these the diverticulum is small and unimportant it is rather remarkable that more cases are not met with in which harmful symptoms arise from this developmental anomaly. Probably the explanation is to be found in the fact that "in nearly all reported instances of strangulation under a diverticulum the process has been adherent to a point other than the vicinity of the umbilicus."[1] When the diverticulum is attached to the umbilicus there is little likelihood of any strangulation occurring.

A boy, aged 14 years, was admitted into Addenbrooke's Hospital, Cambridge, on Jan. 22nd, 1901, with obstruction of the bowels. The abdomen was tympanitic and much distended; the patient vomited and there was violent pain round about the umbilicus. The onset of the attack occurred a week previously, but the more acute symptoms began three or four days before admission. No fæces or flatus had been passed for a week with the exception that Mr. R. E. Smith of Finchingfield, Essex, who was called in on the 19th, had washed away a little fæces with an enema.

An operation was at once performed under chloroform and the A.C.E. mixture. A median incision below the umbilicus let out about half a pint of turbid fluid with a foul smell; there were peritonitis and recent adhesions. The distended intestines were purplish and engorged and were tightly constricted by a band made by Meckel's diverticulum. The band was clamped near the bowel and the remainder was removed; the adherent ampullated end was black and stinking. The clamp on the stump of the diverticulum next the bowel was let free to allow the exit of some of the flatus from the distended bowel; it was then stitched with silk all around an adjacent ashy-grey patch in the intestine. There were some other ulcerated spots in the bowel which threatened to perforate, one of which was folded and stitched over with silk. Some fluid was then sponged out of the pelvis and a large rubber tube was placed in the lower part of the wound down to the bottom of the pelvis; a small superficial drain of gauze was left in the upper end of the abdominal wound.

Rapid recovery followed; the lad had some delirium during the next day or two but otherwise no anxiety arose. There was a free action of the bowels on the third day and the pelvic tube was then removed. There was a fæcal discharge from the wound later which lasted for a week or two but gradually stopped without operative interference. Mr. Smith kindly reported to Mr. Wherry that on June 21st "the boy was as well as ever" except for a slight watery discharge from the sinus, which was never fæcal.

Remarks by Mr. WHERRY.—The case on admission closely resembled one of acute appendicitis with peritonitis, but there were no indications of the locality of the lesion. The diverticulum was a tube about three and a half inches long and had a firm adhesion to the mesentery at its distal clubbed end, leaving a loop across the mesentery in which the small intestines were fixed and strangulated. As the loop did not give way, but pressed like a tense tape against the congested bowel, the distal end of the diverticulum became gangrenous. The absence of any mesentery would favour the death of this extremity, as stretching proceeded in the diverticulum. No doubt if the band had given way an extravasation of fæces would have occurred with the relief of obstruction. The bowels at the operation were only partly emptied of flatus. The gentle uniform pressure of moderately distended intestine in such a condition may assist in repair of the damaged intestinal walls.

[1] Treves: Intestinal Obstruction, 1899, p. 47.

ROYAL SURREY COUNTY HOSPITAL.

A CASE OF LAPAROTOMY FOR INTUSSUSCEPTION IN AN INFANT AGED FOUR MONTHS; RECOVERY.

(Under the care of Mr. C. J. SELLS.)

THE early age of the patient and the apparent absence of collapse, even though the intussusception had lasted three days, are worthy of remark. At the present time it is fairly generally recognised that laparotomy is the best treatment, but even as late as 1888 Mr. A. E. Barker was able to find during the preceding 12 years in London only one case of successful laparotomy for intussusception.[1] For the notes of the case we are indebted to Dr. S. Clifford Pritchard, house surgeon.

A girl, aged four months, was admitted into the Royal Surrey County Hospital on the morning of May 13th. The history showed that for the previous two days the child had apparently been suffering from abdominal pain and the bowels had not been opened except for a little "slimy blood." On abdominal examination nothing could be found, but per rectum the prolapsed portion of the intestine was felt. After a further examination under chloroform, however, this was found to have disappeared. As the general condition of the patient was good it was therefore decided to wait. During the day the child seemed to be quite comfortable and passed a little flatus; the temperature, which was 100° F. on admission, had dropped to 99° F. by 6 P.M. On the following morning (May 14th), as the bowels had not been opened, a warm water enema was given and a further rectal examination was made and the end of the intussusception was again felt. It was therefore decided to operate at once.

Chloroform having been given an incision was made from the umbilicus to the pubes (about three inches in length) in the middle line. The intussusception was found without much difficulty and was carefully reduced by shelling it out from the distal end without any damage to the peritoneum. The parts were rather œdematous and about 18 inches of the ileum had passed in at the ileo-cæcal valve. The incision was then closed and the patient was returned to bed. During the day and following night the temperature rose steadily until it reached 103 at 6 A.M. on the next morning. It then dropped to 99° at 6 P.M. and the bowels were opened for the first time. They were again opened four hours later and the temperature had risen to 101·8°. From this point the temperature again fell and the patient made an uninterrupted recovery.

Reviews and Notices of Books.

Uterine Fibro-myomata: their Pathology, Diagnosis, and Treatment. By E. STANMORE BISHOP, F.R.C.S. Eng. With 49 Illustrations. London: Rebman, Limited. 1901. Pp. 324. 8vo. Price 15*s.* net.

ONE of the most debateable points in gynæcology at the present day is the question, What are the dangers of a fibroid tumour and how is it best treated? That the treatment of such tumours is becoming more and more a matter of their removal by operation is clear from the records of the numerous cases so treated in current medical literature. Whether, as Dr. Champneys would have us believe, the danger of death from a fibroid tumour apart from operation is only 0·000138 per cent. or not is a contentious question upon which no two authorities are agreed. Is it or is it not true that sarcomatous degeneration in a fibroid tumour is of common occurrence? If we search the text-books for information upon this point we find the most divergent statements, and yet this is not uncommonly urged as an indication for the early removal of these tumours. According to Mr. Roger Williams non-malignant uterine neoplasms have no special proclivity to malignant disease; on the contrary, they are less prone to originate such changes than are the morphological elements of the uterus itself. No doubt much of the difficulty in answering such a question lies in the case with which a fibro-sarcoma may be mistaken for a fibro-myoma, and since in many instances a certain answer can only be given by following up the after-history of the patients information upon the point is always likely to be scanty and of little value. In an attempt to give a comprehensive review of the whole subject Mr. Bishop has written this book upon Uterine Fibro-myomata. From the graphic description of the numerous symptoms and ills which, the author holds, accompany a fibroid tumour it is evident that he regards the life of a patient with such a tumour as one of some misery. As he says, if a patient escapes the numerous dangers of the presence of such a tumour, "she leads a life which is often little more than a vegetative existence—the menopause is usually delayed and protracted, she is prematurely aged by the pain and depletion she has undergone; the prospect for such patients is gloomy in the extreme." Truly a miserable outlook. Yet there are some of us who would be inclined to regard such a description as perhaps a little more despairing than is quite warranted by the actual condition of things in many such cases. In illustration of the view which he takes the author has collected a number of cases of death resulting from fibroid tumours. It is, however, a pity to have included cases where certainly a fibroid was present and the patient died but where there was no evidence forthcoming to connect the two events, as, for example, the case in which after death from apoplexy a calcified subperitoneal fibroid was found. The author does not regard malignant degeneration of a fibro-myoma as a common occurrence, and agrees with the view that sarcomata of the uterus arise *de novo* from the endothelium of the small vessels. In regard to the origin of fibro-myomata he agrees with Pilliet, who considers them as arising in the adventitia of the uterine capillaries; this gives origin to a zone of embryonic cells which multiply and develop into rows of concentrically placed smooth muscular fibres arranged round the vessel.

In summing up the effects of medicinal treatment upon fibroid tumours the conclusion arrived at is that "prolonged medicinal treatment of fibro-myomata with a view to radical cure is useless. If a tumour is obviously increasing in size with or without increasing loss of blood surgical or electrical treatment is called for." A chapter is devoted to the discussion of the rôle of electricity. Upon the whole the author considers that the use of the constant current is admissible in certain cases where hæmorrhage is the principal symptom and where no contra-indication exists. The remainder—almost half of the book—is taken up with the consideration of the surgical treatment of these tumours. In a general review of such treatment Mr. Bishop discusses the various kinds of operations that may be performed and recommends the following four methods: enucleation or myomectomy, abdominal or vaginal; abdominal hysterectomy or pan-hysterectomy; vaginal hysterectomy with or without morcellement; and a combination of these two latter methods. He himself is in favour of vaginal hysterectomy when it is possible, a modification of Kelly's abdominal operation with removal of the cervix, or pan-hysterectomy by the combined method beginning from below. His results before 1896 show a mortality of 25 per cent.; since the abandonment of abdominal drainage, the employment of the combined method, and the use of a celloidin dressing for the abdominal incision a mortality of just below 6 per cent. The reasons given for the choice of the operation of combined vaginal and abdominal hysterectomy are as follows. The abdominal cavity is open for as short a time as possible. The separation of the bladder, opening Douglas's pouch and tying the uterine arteries, are more easily carried out from the vagina. Once the uterine arteries are tied the operation is almost

[1] THE LANCET, August 4th, 1888, p. 200.

bloodless. When performed from above these steps have to be carried out at the end of the operation when the fingers are tired. The principle of previous vaginal freeing can be adapted to Kelly's operation and greatly facilitates the performance. In dressing wounds Mr. Bishop uses a mixture of celloidin dissolved in ether and absolute alcohol. He claims for this method that the wound can be washed without disturbing the patient, that there are no bandages to ruck up, that there are no dressings to change, that there is no fear of dust or dirt, and that there is less need of keeping the patient in one position. At the end of from 10 to 20 days the dressing peels off. For success in using this dressing several things are essential. The original wound must be aseptic, it must be dry, there must be no oozing of blood, and all air must be carefully pressed out.

The last chapter, upon Final Results, is a good example of how difficult it is to get information about old patients. In answer to a number of letters addressed to different surgeons a great deal of general information has been obtained, but very little of real worth. Most of the answers given are derived from general impressions and therefore are of no scientific value. In an attempt to find out if patients after operation drift into the workhouses or infirmaries the author has applied at a large number of such institutions. In almost every case the reply is in the negative, no such cases have been met with. From this the conclusion is drawn that the operation of hysterectomy is not, as a rule, followed, as has been said, in any appreciable number of cases by such disabling conditions as fæcal fistula, ventral hernia, vaginal prolapse, or persistent pain.

The book upon the whole is a very fair summary of the present knowledge and practice with regard to fibro-myomata of the uterus. If it contains nothing very original and if the conclusions are in part tinged with the author's evident bias towards surgical interference, yet it gives a good deal of information upon a matter of great interest in a readily accessible form.

Bericht über die Achtundzwanzigste Versammlung der Ophthalmologischen Gesellschaft (Report on the Twenty-eighth Ophthalmological Congress), Heidelberg, 1900. Edited by W. HESS and TH. LEBER, with the assistance of E. VON HIPPEL and A. WAGENMANN. With 17 plates and eight Woodcuts. Wiesbaden: J. F. Bergmann. 1901. Pp. 250. Price 8*s.* (Obtainable from F. Bauermeister, foreign bookseller, Glasgow.)

THE congress to which this report refers opened under the presidency of Professor Leber, who, after giving a friendly greeting to the members, proceeded to confer the von Graefe Prize for the best essay on the Relations of the Central Nervous System and Accommodation. The two essays sent in by Professor Stephan Bernheimer and Professor Carl Hesse had been reported by the judges to be equally good, and the Graefe prize was divided between them. Professor Fuchs of Vienna was then voted to the chair by acclamation. The first paper read was by Dr. Hugo Wintersteiner of Vienna on Traumatic Cysts of the Iris. Several cases were reported. The next paper was on the Treatment of Glaucoma by Resection of the Sympathetic, by Dr. K. Grunert of Tübingen. Fifteen cases were reported, in all of which Professor Hofmeister performed the actual operation, but from other sources than his own observation Dr. Grunert was able to accumulate 47 cases, which with his own made a total of 62. The chronic acute and subacute forms of glaucoma were subjected to this treatment with the result that improvement resulted in all the cases of acute glaucoma, which were five in number. In 16 cases of chronic glaucoma 11 were improved; in 13 cases of glaucoma absolutum six were improved; in 16 of glaucoma simplex 10 improved; in eight cases of glaucoma simplex absolutum seven were improved. In four cases of hydrophthalmus the treatment failed in three but was a success in one. Dr. Grunert considered that the results were satisfactory but that more numerous data were required. Tables are appended showing the degree of improvement that was observed in each case. Dr. W. Uhthoff of Breslau read a long paper on Infectious Optic Neuritis or—to translate it more correctly in accordance with the mode in which he treats the subject—on optic neuritis as occurring in infectious diseases such as syphilis, typhus, typhoid fever, measles, and scarlet fever, and discusses the question whether the micro-organisms escape from the circulation and directly affect the nervous system or not. A paper on the Pathogenesis of Methyl-alcohol Amblyopia was read by Dr. A. Birch-Hirschfeld, who from his experiments has arrived at the conclusion that the primary seat of the action of the poison in the eye is in the ganglion cell layer of the retina and that the granule layers are subsequently affected, these conditions leading to partial degeneration of the optic disc. Professor Schmidt-Rimpler of Göttingen and Professor E. von Hippel of Heidelberg reported cases of Luxation of the Lens. The Action of Suprarenin on the Eye is the subject of a paper by Dr. K. Wessely of Heidelberg, in the course of which he shows that it prevents and removes vascular dilatation and causes dilatation of the pupil and reduces the tension of the globe.

At the sitting of the Congress on the second day Mr. H. R. Swanzy of Dublin was in the chair. Professor Fuchs of Vienna read a paper on Detachment of the Retina after Cataract Operations. Dr. F. Schiek (Halle, a.S.) described and illustrated with drawings—here reproduced in five well-executed plates which are deserving of being studied—cases of Choroiditis Exsudativa Plastica.

Professor Sattler of Leipsic laid emphasis on the advantages of the open-air treatment of all wounds of the eye and proposed that it should be applied after cataract operations. He only places a little damp pledget of wool to the lids for a short time, but takes the greatest care to secure complete asepsis before undertaking the operation. Various speakers seem to have dispensed for some time past with the long and cumbrous bandages formerly in use. Professor St. Bernheimer of Innsbrück gave the results of his experiments upon monkeys to determine the position of the sphincter centre. He states it to be a small-celled median nucleus. Dr. A. Bielschowski of Leipsic read a paper upon the so-called "divergence paralysis" and endeavoured to prove the existence of a subcortical centre for the eversion of the eyes. Other papers are on Binocular Vision, by Dr. L. Heine of Breslau, illustrated by three woodcuts; on the Limits of Acuteness of Vision, by Dr. F. Best of Giessen; and on the Visibility of Schlemm's Canal in the Living Subject.

On the third day of the Congress Professor Bernheimer of Innsbruck was in the chair and papers are stated in the report to have been read by Dr. Ed. Hummelsheim, on Central and Peripheral Acuteness of Vision; by Professor A. von Reuss of Vienna, on Exhausted Areas of Vision; by Dr. E. Hertel of Jena, on Changes of the Retinal Vessels in Arterio-sclerosis; on Intra-ocular Disinfection, by Dr. W. Mayweg of Hagen; on the Finer Histology of the Lacrymal Gland, especially in regard to the Presence of Fat in the Epithelial Cells; on Three Cases in which a Fragment of Iron traversed the Eyeball, by Dr. A. Wagenmann of Jena. Several of these papers were illustrated by drawings, which are reproduced in the report. The report concludes with an account of demonstrations of various cases and instruments that were exhibited before the meeting, which appears from the account here given to have been a very successful one.

Saunders's Year-Book of Medicine and Surgery. Under the general editorial charge of GEORGE M. GOULD, M.D. London and Philadelphia: W. B. Saunders and Co. 1901. Pp. 680. Price (for two vols.) 26*s.*

THE experiment made last year in issuing this work in two volumes has, we are told, proved very acceptable to

subscribers and consequently this plan is continued, and the book now before us is solely concerned with "medicine." The high standard of the work exhibited in previous years is fully upheld, and an excellent summary is given of the principal contributions which have been made to medical science since the publication of the last volumes. The section of General Medicine is edited by Dr. Alfred Stengel and Dr. D. L. Edsall of Philadelphia. The abstracts on typhoid fever will be found interesting, especially the remarks on "typhoid infection without intestinal lesions" and the reports on laparotomy in cases of peritonitis occurring in the course of the fever.

The experiments of Dr. W. Goldie are also worthy of note; repeating the experiments of Flügge, he demonstrated that colonies of tubercle bacilli are obtained upon plates which are held near the mouths of patients suffering from pulmonary tuberculosis when they cough.

The section of "Pediatrics" is edited by Dr. Louis Starr and Dr. A. Hand, junior, of Philadelphia, and that on Pathology and Bacteriology by Dr. D. Riesman and Dr. A. O. J. Kelly of Philadelphia. The results of Sata's experiments in Mixed Infection in Pulmonary Tuberculosis are fully given and it is shown that the majority of advanced cases of pulmonary tuberculosis are mixed infection and that a large part of the pathological changes is the result of such secondary infection.

Dr. Archibald Church of Chicago is responsible for the section of Nervous and Mental Diseases, and Dr. L. A. Duhring and Dr. M. B. Bartzell of Philadelphia for that of Diseases of the Skin and Syphilis. Dr. R. W. Wilcox of New York and Dr. A. A. Stevens of Philadelphia report on Materia Medica, Experimental Therapeutics, and Pharmacology. Dr. G. L. Stewart of Cleveland writes on Physiology. Dr. Wyat Johnston (Montreal) edits the section of Legal Medicine; Dr. J. W. Abbott (Boston) that of Public Hygiene and Preventive Medicine; and Dr. W. Jones and Dr. Reid Hunt (Baltimore) that of Physiologic Chemistry.

Physical Diagnosis of Diseases of the Chest. By RICHARD C. CABOT, M.D., Physician to Out-patients, Massachusetts General Hospital; Assistant in Clinical Medicine, Harvard Medical School. London: Baillière, Tindall, and Cox. 1901. 142 Illustrations, pp. 326. Price 10*s.* 6*d.*

PHYSICAL signs can only be learned by actual experience; the various types of breathing, normal and abnormal, the variations in the rhythm and sounds of the heart, and the numerous phenomena connected with diseases of the chest can only be recognised after prolonged and careful study of a large number of cases. Further, physical signs must be accurately interpreted, otherwise hopeless confusion and innumerable errors will inevitably result. The bedside and the out-patient rooms are the only places where a correct idea of the physical examination of patients can be satisfactorily acquired.

Some help can, however, doubtless be obtained from a written description of physical signs, and numerous works have been published with this intent. The one now before us is one of the best on "Physical Diagnosis of Diseases of the Chest" which we have yet met with. It is of convenient size and the descriptions are couched in simple and exact terms. The point that we especially notice is that considerable stress is laid on departures from the ordinary physical signs of health which may yet not be diagnostic of disease. For example, what more common mistake is made, not only by students, but by junior practitioners, than the diagnosis of "a cavity at the right apex," based on the fact that there is a small patch of bronchial breathing under the right clavicle—a phenomenon frequently occurring in perfectly healthy chests?

An interesting section is headed, "Modifications in the Second Sounds as Heard at the Base of the Heart." The majority of current text-books still repeat the mistaken statement that the aortic second sound is always louder than the pulmonic second in health, but Dr. Cabot shows that the relative intensity of the pulmonic second sound, when compared with the second sound heard in the conventional aortic area, varies considerably at different periods of life, and he shows that the relative intensity of the two sounds in the aortic and pulmonic arteries depends primarily upon the age of the individual, the pulmonic sound predominating in youth and the aortic in old age, while in the period of middle life there is relatively little discrepancy between the two, therefore pathological accentuation of the pulmonic second sound must mean a greater loudness of this sound than should be expected at the age of the patient in question and not simply a greater intensity than that of the aortic second sound. The same observation obviously applies to accentuation of the aortic second sound. These are facts of great importance in the diagnosis of cardiac disease which the student will do well to bear in mind. Dr. Cabot's work will be found a useful one both for study and for reference.

LIBRARY TABLE.

Le Diagnostic Précoce de la Tuberculose Pulmonaire. Par MM. les Drs. CH. JOURDIN et G. FISCHER, Médecins Aides-Majors. (*The Early Diagnosis of Pulmonary Tuberculosis.* By Dr. CH. JOURDIN and Dr. G. FISCHER.) Paris: A. Maloine. 1901. Pp. 148. Price 2 francs 50 centimes.—As the authors of this little book point out in their prefatory chapter, there is no doubt of the extreme importance of making an early diagnosis in cases of pulmonary tuberculosis, especially in view of the recent developments in the treatment of that disease by means of hygienic principles. They point out the difficulty of making an early diagnosis and they quote Catrin's remark: "Every one during his life, without knowing it, has been, is, or will be tuberculous, oftentimes dying from it, but more often being healed of it." The book is divided into three parts: (1) consideration of the signs furnished by external examination of the body and especially of the lungs; (2) consideration of the symptoms given by an examination of the blood and the circulatory system; and (3) consideration of the information afforded by experimental tuberculosis, agglutination tests, and the like. The authors are convinced of the great value of radioscopy and radiography, but, as they say in their final chapter, no one sign or method of diagnosis can be taken as giving indisputable proof but each sign acquires increased value according to the number of other signs and symptoms which are found to coincide with it. The book is simply and plainly written and will be found to be a valuable *résumé* of the opinions existing upon the matter with which it deals.

Rhodes's Steamship Guide for 1901–1902.—This excellent little work gives the intending passenger every conceivable information about how to get to almost any port in the world. It is a pity, we think, that our steamship lines are not more utilised for purposes of travel. To begin a journey by going to some place on board a steamer is the best way to open a holiday. The only objection is that it is a comparatively slow means of travel, and this when time is limited is a consideration. But otherwise, for the holiday maker who is going to any Mediterranean country, we should say, "Go by sea," and this book will tell him how to go. Apart from the purely guide portion of the work there are appended most interesting chapters upon naval construction and machinery. If the reader masters these he cannot do better than next to read Kipling's delightful story of "The Ship that Found Herself."

Intemperance. By Professor CAMPBELL, M.D. London: Burns and Oates. 1901. Pp. 36. Price 1*s.*—This brochure

is divided into three parts—viz., Natural Remedies, Spiritual Remedies, and Auxiliary Remedies. The word "intemperance" is, we may remark, used solely in the restricted sense of alcoholic intemperance. Of the evils of drunkenness there can be no doubt, neither is there any doubt that many people drink far more than is good for them without ever getting drunk. But though Professor Campbell's remarks are for the most part sound, yet we think he spoils his case by protesting too much. His moderate drinker is, for instance, most immoderate. However, we must allow that for a certain class of character there is no medium between total abstinence and intemperance. On page 30 Professor Campbell mentions "medical practitioners who prescribe port and sherry on account of the alcohol contained in these wines. ....." Port and sherry are not, or at any rate should not be, prescribed so much on account of the alcohol which they contain but on account of the vinous ethers. If some method could be found of producing these ethers, both fixed and volatile, free from alcoholic fluids they could be prescribed apart from wines or brandies, but at present they cannot be so used.

Homoculture by Selection. By HENRY SMITH, M.D. Jena. London: Watts and Co. 1901. Pp. 38. Price 6*d.*—This pamphlet, which is mainly made up of reprints from articles contributed by the author to magazines and newspapers, contains a great number of truisms. For instance, "Social reformers must know how to cause good, and how to repress evil conduct" and "Teach the people that if they wish to have fine, healthy, and perfect children, men and women who are deformed and diseased mentally and physically must not marry nor mate ... teach them that they must help to get laws enacted to make such an act a crime and that just punishment will be the consequence." These are admirable sentiments, but Dr. Smith does not vouchsafe any information as to how he is going to obtain the realisation of such desirable ends.

When to Operate in Inflammation of the Appendix. By C. MANSELL MOULLIN, M.D. Oxon., F.R.C.S. Eng. Second edition. London: John Bale, Sons, and Danielsson, Ltd. 1901. Pp. 40. Price 2*s.* 6*d.*—These clinical lectures were originally published in, and have been reprinted from, the *Clinical Journal*. They have, however, been partly rewritten and revised for the present edition. Mr. Moullin insists upon the necessity for early operation, one "preventive in the strict sense of the term." An operation such as this must not be confused with "what is commonly called early operation upon the fourth or fifth day."

Thirty-one Twenty-four Hour Charts for Private Nurses. Arranged by FLORENCE WHITE. London: James Townsend and Son. Price 1*s.*—These charts are arranged so that the nurse, if she keeps them properly, can show to the medical practitioner a record which will enable him to see at a glance his patient's progress as regards temperature, pulse, respiration, the nourishment and stimulants taken, the medicines taken, the working of the bowels and kidneys, and the amount of sleep obtained. The charts should be found to be useful.

The Ophthalmoscope: A Manual for Students. By GUSTAVUS HARTRIDGE, F.R.C.S. Eng., Surgeon to the Royal Westminster Ophthalmic Hospital. With 65 Illustrations and four Plates. Fourth edition. London: J. & A. Churchill. 1901. Small 8vo. Pp. 153. Price 4*s.* 6*d.*—This well-known little manual has been on several occasions favourably noticed in our pages. It is clearly written and is admirably adapted for the beginner. He is not repelled by meeting on the first page which he opens an array of formulæ that he is unable to comprehend—a mathematical presentation of the subject—but Mr. Hartridge presents him with numerous and excellent diagrams which enable him to follow the path of the rays of light illuminating the fundus. The different appearances that are commonly visible of the several regions in the normal eye are well given, such as the variations in the arteries and veins both in regard to numbers, colour, and distribution, the form and colour of the optic disc, and the presence or absence of recognisable vessels in the choroid. The aspects of the principal forms of disease, such as glioma, detachment of the retina, hæmorrhages, papillitis, and others, are fully described, and as the author has drawn from nature and with large experience all the more important features are accurately reproduced. In the next edition we might suggest to Mr. Hartridge that new and better executed chromo-lithographs might replace the present ones. In the first figure of Plate 1 the disc appears to us to be too rosy in hue. Fig. 3, again, is not typical of the changes in old age. At first glance it might be considered to represent hæmorrhages in, or on, the choroid. The manual is otherwise a very good and trustworthy guide for the student.

Atlas der Krankheiten der Nase, ihrer Nebenhöhlen und des Nasenrachenraumes. Von Privat-docent Dr. P. H. GERBER, in Königsberg. Der Atlas Erscheint in 6 Leiferungen à 5–6 Tafeln nebst Text zum Preis von 6 mark für die Lieferung. Einzeln Lieferungen verden apart nicht abgegeben. (Atlas of Diseases of the Nose, the Accessory Cavities, and of the Naso-pharynx. In six parts with five or six plates with accompanying text. Price 6 marks for each part. Single parts are not sold.) Parts 2 and 3. Berlin: S. Karger, Karlstrasse, 15. 1901.—The plates in these parts are devoted to epithelial changes, atrophic rhinitis, atrophic rhinitis fœtida, hypertrophic rhinitis, papillary hypertrophies, naso-pharyngeal hypertrophies, polypi, and naso-pharyngeal polypi. The plates are well drawn, but they are not so well coloured as they might be. They show a tendency to effect the reproduction of the drawings with as few colours as possible; thus the tints of the mucosa are not quite like nature, they are all too pink in hue. The extreme value of good reproductions of drawings of diseased conditions is now recognised as being one of the most successful aids to a proper comprehension of those morbid states to which the human frame is subject, and is useful alike to the practitioner and to the teacher. To the teacher, because he can show to a class on the pictures those points to which he will direct their attention in the clinic; to the practitioner, as he can by their aid obtain much valuable information. Dr. Gerber's atlas is a useful work.

De Omnibus. By the CONDUCTOR (BARRY PAIN). 8vo. London: T. Fisher Unwin. 1901. Pp. 135. Price 2*s.*—This little book contains some desultory expressions of opinion on men, women, and manners, which are put by Mr. Barry Pain into the mouth of an omnibus conductor. There is nothing medical about the book except that it is highly laughable, and in our opinion any really humorous book may be regarded as a therapeutic agent in these days when the pressure of the day's work makes so many of us over-serious. Mr. Barry Pain's conductor is a shrewd and humorous man, and if his experiences do not encourage us to take a very high view of human nature they at any rate provoke mirth, which, we presume, is all that Mr. Barry Pain has intended to do. Angkin, the social reformer, has "grievances ag'inst ev'rythink. 'E inj'yes denarncin' and egsposin', and overthrowin' and abolishin'. If yer listen ter 'im yer'd think as most things were worm-eaten, an' the rest was 'oney-combed, and anythink left over were the thin end o' the wedge." Ike, the hard case, is described with similar apt allusiveness. The jokes against the types of Angkin and Ike may be obvious but they are none the less good; and the same may be said of most of the points which Mr. Barry Pain makes—they are not new, but he makes them gaily and fairly. "Woman the Obscure" is a capital satire

on a sort of vague thoughtlessness to which too many of us are prone; "Queer Fares" are very queer; while "Them Boys" is a sound collection of the exploits of bad urchins. A bright little book.

Walks in London. By AUGUSTUS J. C. HARE. Seventh edition, revised. London: George Allen, Charing-cross-road, W.C. 1901. Pp. 780. Price 12s.—The publication of another edition of Mr. Hare's entertaining and instructive itinerary dealing with the many objects of interest in London is a fitting opportunity for those Londoners—and their name is Legion—who know very little of their London to take a first step in the direction of cultivating an acquaintance with the vast field of historical and antiquarian treasure which they are in the midst of. Let Mr. Hare be their guide and philosopher, and we predict that he will assuredly become their friend.

New Inventions.

THE MODERN URETHROSCOPE.

THE introduction of electric illumination and the more recent improvements in the construction of suitable incandescent lamps have rendered the modern urethroscope so simple and efficient that from an instrument having a comparatively limited value among a few specialists it has attained a prominent position in the armamentarium of genito-urinary surgery. The difficulty of obtaining a suitable illumination of the urethroscopic field which so hampered practical examinations with the older instruments has been overcome by two separate and distinct methods, one or the other of which is now used in all forms of the modern urethroscope. In one of these the source of illumination (the electric lamp) is introduced into the urethroscopic tube close to the mucous membrane, which it directly illuminates, while in the other the source of light is altogether outside the tube, the field being illuminated by rays of light thrown down the tube, either by a reflecting mirror, prism, or lens as the case may be. The difficulty with all instruments having an internal source of illumination is that a portion of the field is obstructed by the lamp and its carrier, which, small as it is, is capable of interfering to a considerable extent when the smaller tubes are used. The light is adapted to one length of tube only and although all portions of the urethra may be observed with the long tubes, it is frequently of advantage when working in the anterior urethra to use shorter ones. With these instruments it becomes necessary to use a separate light carrier for each length of tube used. The tiny lamp is tender, easily burned out, and apt to be short-lived. All these objections are trivial, however, in comparison with the fact that the urethroscope with internal illumination is not a good working instrument. It is practically impossible to render it surgically clean. The presence of the lamp hinders the use of applicators in conveying medicated solutions directly to the mucous membrane and of swabs when bleeding and discharge are present. If this is attempted the lamp frequently becomes entangled in the cotton swabs, or becomes covered with blood or pus, rendering it, for the time being, useless and a very possible source of infection in subsequent examinations.

The illumination of the urethroscopic field by a source of light from the outside, reflected into the tube, is as old as urethroscopy itself and far antedates the experiments of Desormeaux, the first to make any serious use of this method of urethral investigation. Previously to the year 1892 all forms of the urethroscope with external illumination used the mirror in some form to direct the rays of light, and while in many of these instruments this method was fairly satisfactory it was of necessity accompanied by many drawbacks. The dazzling effect of extraneous rays of light on the eye of the operator became exceedingly unpleasant in prolonged examinations, the apparatus was usually cumbersome, and even the best of these instruments lacked necessary power.

In 1892 I devised an instrument on an entirely different principle from that of former urethroscopes, the rays of light from a small electric lamp being directed through a plano-convex lens to the bottom of the urethroscopic tube, thus attaining a better illumination and obviating most of the objections pertaining to the reflecting instruments. The instrument in its present form presents many improvements over the original device due to alterations which have suggested themselves from time to time and to advances made in electric illumination. I have also to thank Messrs. Wappler and Co. for the excellent manner in which they have put these suggestions into practical form and the success attained by them in its construction. It consists of a metal tube or cylinder an inch and a quarter in length by somewhat less than half an inch in diameter, the first half inch of which is narrowed down conically forming a funnel-shaped diaphragm leaving an opening of a quarter of an inch diameter through which the rays of light emerge. At the other end of this tube is a second tube of the same diameter forming an elbow at right angles to the first tube three-quarters of an inch in length into which the handle of the instrument fits. The funnel portion unscrews from the upper tube and a

Otis urethroscope showing the lamp and a portion of the urethral tube.

plano-convex lens at this point serves to concentrate and to direct the rays of a small electric lamp placed immediately behind it. This lens may be readily removed for cleaning. The handle consists of a cylindrical piece of hard rubber about one-half inch in diameter and one and a half inches long, to the upper end of which is fixed the electric lamp, while the lower end is arranged to receive the cords leading to the battery. A small electric switch in the form of a milled wheel is placed on one side of the handle, a half turn of which makes or breaks the current. The two small screws seen on the other side of the handle serve, the upper one to clamp fast the hood, the lower to fasten the lamp in position.

The lamp is of the variety known as "high efficiency," differing from the ordinary lamp in a specially prepared filament which enables it to give out a very intense light without a corresponding increase in the amount of heat. It is unusually strong and capable of standing a current of from 16 to 20 volts. It is attached to a wire running through the centre of the handle in such a manner that it may be raised or lowered and clamped in position by the lower screw. The only adjustment which may be necessary is, when changing the lamp, to see that the filament of the new lamp should come exactly in the centre of the lens. A small piece of brass with a pin-hole in it has been placed on the handle behind the lamp socket so that by holding this to the light and moving the lamp up or down until the filament is exactly across the centre of the hole the lamp may be clamped in the correct position. A strong wire

connects the instrument to the urethroscopic tube by means of a simple joint. With reference to the length of the handle and the weight of the instrument, both of which have been criticised both favourably and adversely, I would say that these depend entirely on the whim of the operator, as the handle may be lengthened to any extent or entirely obviated, while by a slight alteration in material and construction the weight of less than one ounce may be reduced to a few grains.

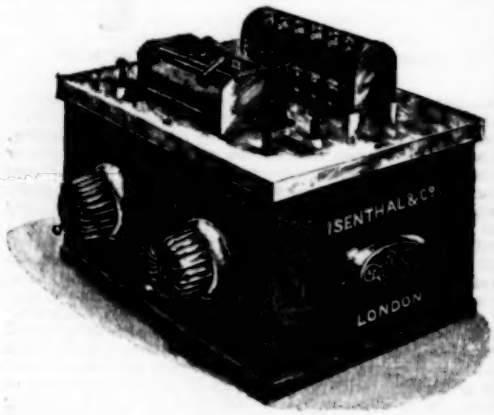
The accompanying illustration is from a photographic reproduction exactly half the size of the original instrument. A straight line drawn along the lower edge of the urethroscopic tube through the illuminating apparatus practically demonstrates that the latter does not stand in front of the opening of the urethroscopic tube, as is commonly supposed, but is below it and consequently causes no interference with a direct view of the field or the introduction of instruments.

Great pains have been taken and many experiments made to perfect this instrument, with the result of obtaining an illumination of field such as is not found in any other instrument of any type. It gives the entire field of the tube used. It offers no obstruction to the use of applicators and at the same time nothing is inserted into the urethra which cannot be rendered thoroughly aseptic by boiling. It is simple in construction, strong, and inexpensive, and it fulfils all the indications of a good practical working instrument.

WILLIAM K. OTIS, M.D.,
Consulting Surgeon, City Hospital, New York; Attending Surgeon St. Mark's Hospital; Fellow, New York Academy of Medicine, and of the American Association of Genito-Urinary Surgeons, &c.

PORTABLE TRANSFORMER FOR CONTINUOUS CURRENT.

THIS apparatus has been designed essentially for the economical and convenient use of the continuous current from the main. Two types are made—the first, being 110 volt, works at pressures between 100 and 130 volts; the second type, being 220 volt, works at pressures between 200 and 230 volts. The transformer has been so designed that neither rheostat nor lamps are required, while special heavy wires or cables are not necessary for carrying the current into the consulting-room or operating-room. Indeed, the apparatus may be directly attached to any wall, plug, or even lamp. The following instruments may be used directly from the main by means of this transformer: surgical



lamps (from two volts to 30 volts), induction coils (small current), and electrolysis needles. The former instruments, taking small currents, may be used simultaneously with the cautery points or snares without affecting their work in the slightest degree. The efficiency of this transformer is stated to be, when using the cautery point, about 86·5 per cent., whereas the efficiency through a rheostat would be 5 per cent. We have watched the working of this apparatus and we found the results to be very satisfactory and most conveniently attained. Its advantages for surgical work are obvious. The weight of the large type is 50 pounds and that of the ordinary type 33 pounds. These portable transformers for continuous current (one of which is shown in the accompanying illustration) are made by Messrs. Isenthal and Co., of 85, Mortimer-street, London, W.

ASYLUM REPORTS.

Cumberland and Westmoreland Asylum (Annual Report for 1900).—The average number of patients resident during the year was 648 and comprised 333 males and 315 females. During the year 192 cases were admitted, 102 of these being males and 90 females. Of these 45—viz., 28 males and 17 females—were not first admissions. Dr. W. F. Farquharson, the medical superintendent, states in his report that the admission-rate equalled that of 1895 and was higher than in any other year since the opening of the asylum. This increase, however, was due to the large number of private and out-county patients admitted. These numbered 43, of whom 16 were private and 27 were out-county patients. "The admissions included many cases of an unfavourable character; thus there were six cases of congenital imbecility, 13 cases of epilepsy, five cases of general paralysis, and 11 patients over 70 years of age. In 30 cases the attack of insanity had lasted more than a year before the patient was brought to the asylum. Of the 192 patients admitted 100 came here in weak health, while eight were in an extremely feeble and exhausted state, and several of these died within a few days after admission." Cases of melancholia were proportionately less numerous than usual in the admissions, cases of mania being almost thrice as numerous as cases of melancholia. 45 cases were suicidal and 15 of these had actually attempted suicide before admission. An hereditary predisposition to insanity was ascertained to exist in 27 per cent. of the admissions. More than 20 per cent. of all the cases were marked by a history of alcoholic intemperance. In many of the alcoholic cases the mental symptoms passed off within a few days after admission as soon as the alcoholic poison was eliminated from the system. "These patients invariably promise faithfully to give up intemperate habits, but few of them appear to have sufficient self-control to abstain for any length of time. Such cases cannot be detained sufficiently long in an asylum to cure them of their craving for drink; prolonged detention in an inebriate institution, could this be legally carried out, would be much more beneficial to them." Six of the patients were women with insanity after childbirth. In many instances the attack of insanity was found to be preceded by some bodily disease, influenza being a very common antecedent. The only effect of the war and popular excitement on the admissions to the asylum seems to have been an increase in alcoholic cases; "at least one such patient was admitted the inception of whose attack dated from Mafeking night." During the year 77 patients were discharged as recovered—viz., 41 males and 36 females, or 11·8 per cent. of the average number resident. The deaths during the year amounted to 72—viz., 35 males and 37 females, or 11·1 per cent. as calculated on the same basis. The death-rate was the highest there had been at the asylum for 17 years. In the previous year the contrary was the case, the death-rate being as low as 6·8 per cent. The mean death-rate of the two years was 8·9, which corresponds almost exactly with the average death-rate since the opening of the asylum. Of the deaths six were due to senile decay, three to epilepsy, four to pneumonia, eight to organic brain disease, 12 to cardiac disease with pulmonary complications, 13 to general paralysis, and 16 to pulmonary tuberculosis and other tuberculous diseases. A post-mortem examination was made in every case. Five patients sustained accidental fractures of bones during the year and all made satisfactory recoveries. There was one outbreak of influenza which attacked a considerable number of the patients and staff in the early part of the year. Sanitary improvements in the form of soil drains and bacteria beds have been completed and are working satisfactorily. The Commissioners in Lunacy state in their report that the medical case-books are illustrated with photographs and are well kept, and that the post-mortem notes are creditable.

THE LANCET.

LONDON: SATURDAY, AUGUST 31, 1901.

The Investigation of Cancer.

IT is now more than a month since the British Congress on Tuberculosis was brought to a close and we had hoped that before the end of the Parliamentary session the Government would have announced the appointment of a Commission thoroughly to investigate the question as to the identity or not of human and bovine tuberculosis. Important affairs of State cannot always be decided upon off-hand; and there are doubtless considerations other than scientific that have to be weighed before a responsible Minister can prudently advise the Sovereign to take such a step as that recommended by the Congress. The President of the Local Government Board has, however, stated in the House of Commons that such an appointment is under consideration by the Cabinet; and with this assurance we may confidently leave the matter in his hands. Mr. LONG is a statesman who has already proved that he possesses, not only an intelligent grasp of what is essential for the preservation of health, but also the requisite determination to carry his projects into effect. If and when the help of the Local Government Board is required to fight against another dread disease we hope that an administrator of his pattern will be found in authority.

For there is yet another malady that, equally with tuberculosis, demands the attention of the legislature in support of the medical profession. We refer to cancer or malignant disease, which, in regard at any rate to the acuteness of the suffering entailed on its victims, is even more terrible than tuberculosis. Our readers will remember that in his gracious address of welcome to the foreign delegates to the recent Congress His Majesty the KING gave emphatic expression to an opinion which, in view of recent events, every loyal Englishman will endorse with respectful sympathy. "There is still," said His Majesty, "one other terrible disease which has up to now baffled the scientific and medical men of the world, and that is cancer. God grant that before long you may be able to find a cure for it or to check its course. I think," added the KING, "that to him who makes the discovery a statue should be erected in all the capitals of the world." We cordially endorse the view. Cancer has steadily increased in fatality, both absolutely and relatively, ever since the commencement of civil registration, the mortality attributed to it having more than doubled within the last 40 years. In 1899, the latest year for which returns have been published, the deaths from cancer in England and Wales exceeded 26,000 in number. Without going deeply into statistics we may remark that although in early life cancer claims fewer victims than does pulmonary tuberculosis, nevertheless, at all ages beyond middle life it is considerably more fatal than the latter disease, especially amongst women. In the valuable series of reports prepared at Somerset House we are kept informed year by year of the rapidly increasing death-toll levied by cancer on different sections of the community so far as this can be gleaned from the national registers of death. But it appears to us that in order to arrive at a sound judgment respecting the *essential nature* of cancer very much is required beyond a merely statistical analysis of the mortality to which it gives rise. The etiology of malignant disease in its varied forms will never be fully understood save after diligent and rightly directed study of cases in the hospital and rigid examination of specimens in the laboratory. This is the method which has revealed the true nature of tubercle and certain other scourges of humanity, and has shown them to be preventable. In these later days the tendency amongst persons afflicted with cancer is to resort in gradually increasing numbers to the hospitals of our great towns where good nursing and the best medical advice are at their disposal. And inasmuch as at these institutions careful necropsies are made in fatal cases by competent pathologists there is little doubt that even now there exists in the registers of these hospitals a vast amount of information of precisely the kind required which might readily be made available for detailed examination if only a suitable authority were commissioned for the work. Why should there be any longer delay?

A doubt has often been expressed whether a Royal Commission is better adapted than other known methods for the investigation of a scientific subject like an elaborate inquiry into the etiology and prevention of malignant disease in all its protean forms. For our part we think nothing but immense good could come from the appointment of such a Commission. No immediate discoveries might follow its work, but there would be sifting and codifying of evidence that could not fail to be enormously helpful to future investigation, while valuable suggestions might come from unexpected quarters. In the distinguished chief of his own medical department the President of the Local Government Board possesses a counsellor of rare ability and we are sure that any project of the kind which received Mr. W. H. POWER'S approval would secure also the confidence and willing coöperation of the medical profession.

Suggestive Discussions at the British Medical Association.

THE papers and discussions which were respectively read and held at the recent meeting of the British Medical Association at Cheltenham were fully up to the high standard usually attained at the annual assemblies of the Association. Some of the discussions were essentially practical, whilst others had a more theoretical aspect. We refer to two which seem to us likely to be of particular importance as foreshadowing future developments of knowledge.

In a leading article in THE LANCET of Feb. 2nd of this year we alluded to the doubt which had been expressed by some observers as to the power of alcohol to produce peripheral neuritis, and during the discussion at Cheltenham opened by Dr. E. S. REYNOLDS some of the speakers expressed the same opinion, but the majority suggested that the causation was a mixed one. Dr. DIXON MANN thought that alcohol acted by interfering with the molecular changes in the nerve-cells, so rendering them liable to be affected by the arsenic, and Dr. A. P. LUFF supported this

view. Dr. T. N. KELYNACK produced statistics which seemed to indicate that much of the so-called alcoholic paralysis met with in Manchester and district during recent years had really arisen from the use of arsenicated beer, but he considered that the effects of arsenic had been modified by the method of its administration in beer and urged that they had been accentuated by the action of the arsenic. Dr. NATHAN RAW also believed that all the cases in the epidemic referred to were caused by arsenic and that alcohol intensified its action; he also pointed out that the effects of arsenical neuritis were recovered from more rapidly and completely than were those of the alcoholic form. Dr. F. M. POPE hesitated to accept the theory that alcohol alone could produce the disease, and Sir WILLIAM GAIRDNER argued that in view of the large amount of alcohol consumed and the rarity of neuritis in previous years alcohol could not be the cause of the condition. Professor W. OSLER, on the other hand, said that although alcoholic neuritis is rare in America, yet it did occur, and the symptoms observed were identical with those which had been described in arsenical cases, with the exception of those relating to the skin and the vaso-motor functions, and he fully believed that alcohol was the cause of the disease in the cases which he had seen. With such differences of opinion emanating from well-known authorities it is evident that at present no definite conclusion can be arrived at. As Dr. REYNOLDS pointed out there are three possibilities: first, that the symptoms were caused by alcohol and arsenic acting together—e.g., that the arsenic caused the effect upon the skin and that the alcohol caused the neuritis; secondly, that all previous cases were really due to arsenic and not to alcohol; and, thirdly, that alcohol and arsenic were both separately able to produce all the symptoms of the disease, but that their action was intensified when they were both acting together. At present we should feel disposed to favour the third proposition. All modern text-books describe peripheral neuritis arising from the consumption of alcohol and of arsenic, and without stronger evidence than has already been brought forward we should not feel justified in entirely eliminating alcohol as a cause of that disease.

Another discussion of considerable interest was that opened by Mr. A. G. R. FOULERTON on the Pathology of Pneumococcic Infection. Considered solely from the point of view of a pathogenic organism the pneumococcus is in some respects disappointing, as it is frequently found in healthy individuals without giving rise to any morbid symptoms; but this only serves to accentuate the fact that a disease caused by a pathogenic microbe requires a second causal agent in the shape of a suitable pabulum upon which the micro-organism can grow and so produce its pathological effects. There is another parasite which exists under very similar circumstances—namely, the bacillus coli communis. This organism, although a universal and, according to BIENSTOCK, a useful parasite of the intestinal tract, becomes, nevertheless, like the pneumococcus, actively pathogenic when it finds the opportunity of penetrating below the mucous membrane. Mr. FOULERTON adopted a practical method of treating his subject, laying stress on three points—(1) the general results of blood infection and those of the toxæmia produced by the absorption and circulation of toxins formed in the local foci of infection in the tissues or produced by cocci which had infected the circulating blood itself; (2) the direct action of the parasite in the various tissues in which it became located in the course of an infection; and (3) what might be termed the secondary results of the infection—that is to say, those results due not to any direct action of the infecting organism but arising from the new morbid conditions brought about by the infection. Clinical experience shows that in the case of pneumococcic infection these secondary effects are often of the greatest importance and not infrequently active treatment is mainly directed to combating them. Thus there are the effects on the right heart of the obstruction to the flow of blood through the infected area of the lung, the serious results of sudden diminution of the surface available for the oxygenation of the blood, and the effects of interference with cerebral function in cases of meningitis. Mr. FOULERTON further pointed out that with regard to the exact nature of the toxic substances produced in the course of a pneumococcic infection very little is known and it is uncertain whether such are actually secreted by the cocci themselves or whether they are formed from the infected tissues by the action of the cocci. He then referred to the work of Professor KLEMPERER who had isolated a toxic albumose, pneumotoxin, from broth cultures of the coccus, and also mentioned that Dr. A. G. AULD had isolated an albumose from the infected tissues. Dr. J. W. WASHBOURN, the president of the section, who took part in the discussion, expressed himself as not satisfied as to the isolation of toxic substances from cultures of the pneumococcus, he himself having failed to isolate any toxic albumin.

Another point to which Mr. FOULERTON drew attention was in respect to the alterations in the tissues brought about by the action of the pneumococcus. Various changes had been described in the cardiac and voluntary muscles, and he also said that there was a certain amount of evidence that changes in the motor ganglion cells might result. Dr. CAMPBELL THOMSON and himself, when investigating the action of various bacterial toxins on the motor-cells of the cerebral cortex, found some indications of structural alteration in these cells in pneumococcic infection. Although the knowledge yet attained in these matters is evidently rudimentary, yet such discussions as the above serve admirably to take stock of the amount of work which has already been accomplished—an opportunity is given for various investigators to compare their results and to give an impetus to others to continue their researches. When the action of toxins has been thoroughly investigated the path will be more open for a study of natural and artificial immunity, and for the discovery of measures which will be effectual in the destruction of the toxins and in combating their deleterious action.

The Pathology and Treatment of Fibroid Tumours of the Uterus.

THERE is no subject which is of greater interest to the obstetrician or the gynæcologist than the pathology and treatment of fibroid tumours of the uterus and none in

which, by a gradual evolution, there has been a more marked change of opinion and of practice. While in former times fibroid tumours, the most common uterine growths met with among women, were looked upon as by no means dangerous and as rarely needing surgical treatment, now the great advances in abdominal surgery, the more careful examination (post-operative and post-mortem) of these tumours, and the present more accurate clinical observation, have shown that they are by no means so simple as was formerly thought and that women, the subjects of them, demand the most careful watching. When a fibroid tumour is discovered, if it is doing no harm clearly it should be left alone; but it is as unscientific to say that no fibroids should be interfered with as that all should be removed. Putting aside such cases as fibroids taking the form of polypi, which, of course, should be removed, what are the indications for surgical interference in fibroids? We think all will agree that in the presence of (1) severe hæmorrhage, (2) pressure symptoms, and (3) signs of degeneration in the tumour operative treatment is needed. The question of the occurrence of degeneration in fibroid tumours is of the greatest import, and we believe the trend of opinion is that it is more common than was formerly suspected, and this view is supported by the results of the more careful examination of these tumours which is now being every day made by competent pathologists. The forms of degeneration are numerous, such as sloughing, myxomatous or cystic degeneration, calcareous infiltration, and vascular changes. It is common with some to speak of malignant or sarcomatous degeneration in fibroids, but we think that any malignant condition noticed in such growths should be regarded as of independent origin; however, we must not forget that PROCHOWNICK[1] has shown that degeneration may occur in a fibroid which on microscopic examination is innocent, and yet in its effect on the patient the degeneration may really be almost of a malignant nature. We owe much to the observations of PROCHOWNICK, which he brought before the Hamburg Medical Society in March, 1901, as well as to the paper read on July 11th at the British Gynæcological Society by Dr. CHARLES NOBLE[2] of Philadelphia, in which he gave details of 218 cases of uterine fibroids upon which he had operated. While one thing is established clearly—viz., that degeneration taking place *after* the menopause is much more serious in its import for the patient—we are quite ignorant as to what cases will or will not undergo degeneration. The clinical symptoms which indicate the occurrence of degeneration in a fibroid are: (1) sudden enlargement of the tumour; (2) abdominal pains due to increased tension, or it may be to peritoneal inflammation; (3) increased menstrual loss; (4) reflex (cardiac and renal) irritation; and (5) the presence of ascites. Another curious fact which all gynæcologists must have observed is the frequent presence of adnexal or broad ligament complications with fibroids. Finally, we must draw attention to conditions of the general system of serious import often present in patients with fibroids due to the continued hæmorrhage and pressure effects, such as anæmia, fatty heart, or signs of interference with the bladder or kidney.

Apart from these accepted indications for operation, may not the mere size of a fibroid call for its removal (1) if it constitutes a deformity; (2) if it prevents a woman (a governess or servant) from obtaining a situation; and (3) if by its size and shape it exposes a woman to adverse criticism? One thing is clear, we can lay down no rules applicable to all cases of fibroids, each one must be judged on its own merits; but we must never forget that fibroids, owing to their tendency to degeneration, are at all times "tricky" tumours, and especially is this true after the menopause. Indeed, the old belief that they tend to disappear after the cessation of menstruation is one which in the light of modern observation must be received *cum grano salis*. They do disappear in some, but by no means in all, cases after the menopause. As to treatment, the electrical method and the plan of removing both ovaries (with the idea of starving the tumour) are procedures of the past. Morcellement and myomectomy suit some cases, but in the main retro-peritoneal hysterectomy is the method which for the present holds the field. In its technique (the Trendelenburg position is an enormous gain) the principal points are to make the peritoneal flaps as small as possible (so as to leave no space where fluid may decompose), just sufficient to cover the stump (which should not be sutured). The stump and all the ligatures should be covered with peritoneum and the vessels should be tied on ordinary surgical principles; that is, rather than ligature them *en masse* with some of the broad ligament, it is wiser to amputate the uterus and to tie the vessels as they spout. A pedicle needle tends to wound the veins. There are two drugs which are useful accessories in the surgical treatment of fibroids, strychnine and spartein. Dr. W. DUNCAN,[3] to avert shock and heart failure, gives liquor strychninæ in three-minim doses thrice daily for a week before and a week after hysterectomy, while Mr. ALBAN DORAN[4] says that he has found spartein useful, especially in the cases of middle-aged women with unhealthy kidneys. Early feeding of the patients after hysterectomy is now found to be more advantageous than the long starvation which was Mr. LAWSON TAIT'S plan; and another point in these cases to be most carefully looked after is distension of the bowel, for which early and thorough purgation, combined, if necessary, with turpentine enemata, is indicated.

[1] Münchener Medicinische Wochenschrift, 1901, No. 19.
[2] THE LANCET, July 27th, 1900, p. 210.
[3] THE LANCET, August 17th, 1901, p. 467.
[4] THE LANCET, August 17th, 1901, p. 467.

The Lunacy Problem and Official Statistics.

THE total number of lunatics England and Wales under the official cognisance of the Commissioners in Lunacy on Jan. 12th, 1901, was 107,944, being an increase of 1333 over the corresponding number for Jan. 1st, 1900. This increase compares with an increase of 1525 in 1899 and one of 3114 in 1898. It would thus appear that there has been "a diminishing rate of increase of lunatics in the last two years," on the basis of census returns of all lunatics on Jan. 1st of the three years 1889 to 1901. This conclusion is likely to be misleading, for the choice of any date assumes that the number of the insane under official cognisance on a given date is fairly

regular even in its variations. This, however, is not the case, for in one year there may be a host of cases above the average on a given date, in January for instance, and next year there may not be a fourth of the excess. The only fair estimate of the increase or diminution of insanity available from the Commissioners' returns is the daily average number of lunatics resident in all institutions for each year. In Table IV. of the annual report of the Commissioners in Lunacy the daily average number resident "in asylums, registered hospitals, &c.," but exclusive of lunatics in workhouses and "out-door" pauper lunatics, in each of the years 1891 to 1900 inclusive is recorded, the figures being 75,200 for 1896, 77,645 for 1897, 80,406 for 1898, 82,666 for 1899, and 83,954 for 1900. In idiot establishments the average numbers resident during the four years 1897 to 1900 have been almost entirely unchanged, so that the increase solely affects county and borough asylums and other institutions exclusive of idiot establishments. The total numbers of patients admitted yearly (exclusive of transfers) to all institutions except idiot establishments are given in Table III. and are as follows. There were 18,632 admissions in 1896, 18,848 in 1897, 19,314 in 1898, 19,289 in 1899, and 19,837 in 1900. Limiting ourselves to "first admissions" the only figures available at present refer to the past three years and are as follows. In 1898 the first admissions amounted to 15,514, in 1899 to 15,752, and in 1900 to 16,192. It is thus clearly established on the basis of Tables III. and IV.—viz., average numbers resident, total admissions, and "first" admissions—that the increase of lunacy is real and not apparent, and, moreover, that this rate of increase is slightly greater than the rate of increase of the general population.

A survey of the returns published regarding the recoveries and deaths during each year will serve to emphasise the same conclusion. The general recovery-rate in 1896 was 9·78 per cent. of the average number resident in all[1] institutions, and the death-rate was slightly lower—viz., 9·05 per cent.—as calculated on the same basis. During the quinquennium 1896 to 1900 the recovery-rate has slowly fallen and the death-rate has slowly risen, as will be seen from the following table taken from Table VIII. :—

	Recovery-rate on average number resident.	Death-rate on average number resident.
1896	9·78 per cent.	9·05 per cent.
1897	9·53 ,,	9·43 ,,
1898	9·06 ,,	9·45 ,,
1899	9·37 ,,	9·87 ,,
1900	9·27 ,,	10·14 ,,

This fall of the recovery-rate affects both sexes, and a tabulation of the returns for the period 1873 to 1900 into quinquennial groups brings out the facts more plainly :—

Quinquennial periods.	Proportion of recoveries to daily average numbers resident.	
	Males.	Females.
1873–1877	11·03 per cent.	11·99 per cent.
1878–1882	10·63 ,,	11·41 ,,
1883–1887	9·70 ,,	10·61 ,,
1888–1892	9·78 ,,	10·52 ,,
1893–1897	9·71 ,,	10·22 ,,
1898–1900*	9·06 ,,	9·37 ,,

* Three years.

The Commissioners in Lunacy advert to these figures as showing "a considerable decline" in the recovery-rate and believe that "this results, no doubt, from the great accumulation of chronic and incurable cases." Some support is lent to this view by the fact that a considerable proportion of patients are senile cases. Thus the number of patients in the institutions at the end of December, 1899, who were aged 65 years and upwards was 10,092, or 12·18 per cent. of the total patients—a slightly lower proportion than at the end of December, 1898, which was 12·37 per cent. An increasing and continued influx into pauper asylums of non-recoverable cases other than senile cases is probably the main factor in the lowering of the recovery-rate. In this connexion it is interesting to note that of the total admissions in the years 1895 to 1899 inclusive 7·3 per cent. were cases of general paralysis and 7·7 per cent. were due to epilepsy.

The deaths during the year amounted to 8356 and the causes of deaths are given in Table XIV. Of the deaths 1344 (1031 males and 313 females) were due to general paralysis of the insane, 433 to epilepsy, 1185 to pulmonary tuberculosis and 104 to other forms of tuberculosis, 689 to pneumonia, 773 to various forms of cardiac disease, 752 to senile decay, 179 to colitis, and the rest to other causes. Amongst the latter, however, are included such vague terms as "congestion of the brain," "toxic paralysis," "disease of spleen," and "atrophy," which convey no definite information.

The Commissioners draw special attention to the need for classification of patients and for the provision of cheaper institutions for the chronic and incurable classes of patients. The ordinary modern county and borough asylum, being essentially and primarily a hospital for the treatment of disease, is necessarily costly in construction and equipment. What is needed is the differentiation of asylum buildings at the present day in such a manner that there shall be mental hospitals for the recoverable and the acutely insane, and simple, inexpensive buildings for the accommodation and care of chronic and incurable lunatics. In this way it would be possible to limit excessive expenditure and yet to afford due provision to both classes of patients without imposing an undue burden upon the public. With this view, and to secure these ends, the Commissioners had already addressed a circular to the county councils and other authorities concerned, in which the latter were advised that the Commissioners would regard it as their duty "to advise the Secretary of State to refuse his approval of all [asylum] plans in which there is an obvious departure from this principle."

The study of the present report of the Commissioners in Lunacy leaves on the whole a feeling of uneasiness. With a slow but steady increase of the average lunacy population year by year, a decreasing recovery-rate, an increasing death-rate, and a continued and increasing influx of incurable and refractory cases of mental disease into our public asylums, the conviction is slowly being strengthened that with all our boasted scientific and medical progress in the past decades the cure of the insanities as a whole has fallen behind expectations, and that the only hope of progress in the future lies in devoting more attention and study to the prevention of insanity on the lines advocated by many of our leading alienists and referred to in these columns a year ago.[1]

[1] THE LANCET, August 11th, 1900, p. 411, leading article on The Prevention of Insanity at its Sources

Annotations.

"Ne quid nimis."

THE ERADICATION OF RABIES FROM ENGLAND.

"DURING the whole of 1900 no case of rabies was confirmed in England or Scotland, and it may be stated with some confidence that in these two countries the disease, which has been present there for so many centuries, has been entirely eradicated." These are the opening words of the paragraph on rabies in the recently issued "Annual Report of Proceedings Under the Diseases of Animals Acts" for 1900. This report is the official one of the Veterinary and Animals' Department of the Board of Agriculture and is the combined work of the chief veterinary officer (Mr. A. C. Cope) and the assistant secretary of the Animals' Division (Major Tennant, C.B.). As a result of the action of the Board during the last four years rabies has been confined to the counties of Brecon, Carmarthen, and Glamorgan in Wales in 1900, in which counties six cases in dogs, four in cattle, and one in a horse were confirmed by the Board's veterinary officers. In addition, 15 dogs which had been exposed to infection were slaughtered in Carmarthenshire. In Lancashire, where rabies used to be very prevalent, 15 inoculative tests were carried out at the University of Liverpool during the year, but all with negative results. In fact, with the exception of one case in an imported dog, which occurred in the North Riding in 1899, the whole of Lancashire and the three Ridings of Yorkshire have been free from rabies for upwards of two years. In the metropolis and surrounding counties no case has been detected since July, 1898. In numerous instances dogs have been killed but in no instance has the existence of rabies been demonstrated by inoculation. The inoculation test was applied during the year in seven instances at the Brown Institution and in nine at the Royal Veterinary College. All gave negative results. One inoculation was also carried out with portions of the brain of a bullock which had been bitten by one of the rabid dogs discovered in Wales, and the result confirmed the opinion which had already been expressed by the officers of the Board—viz., that the dog which had bitten the bullock was affected with rabies. The only really dangerous centre of the disease in Great Britain at the end of 1900 was South Wales, a part of the country where rabies has often been more or less prevalent, and a district which, by reason of its mountainous nature, renders it extremely difficult to enforce a muzzling regulation. With such results as the above the Board of Agriculture and the able Minister, Mr. Walter Long (who enforced the muzzling order in the face of so much opposition), have every reason to congratulate themselves. When we read that "France still reports from 2000 to 3000 cases in a year, that in Italy nearly five times as many cases were declared in 1900 as in 1899, that in Belgium the disease is on the increase, and that in India and America rabies is still prevalent," we in England must feel that we owe a deep debt of gratitude to Mr. Long and to his veterinary and administrative advisers. For the first time during 51 years not a single human being died in the year 1899 from hydrophobia in England and Wales, and the returns for 1900 show a similar result. The good work is the more readily realised when we read that in 1877 no fewer than 79 persons were registered as having died from this terrible disease. Much abuse has been poured upon Mr. Long and his advisers during the past five years, but, fortunately, they have stood firmly by their convictions, and even their most fanatical persecutor must now own that the end has more than justified the means. No other European country can show such a clean sheet with regard to the rabies question, and it now only remains to watch the ports to see that the disease is not re-introduced. No relaxation must be permitted in the quarantine regulations, and it is to be hoped that when the next report is issued there will be as clean a bill of health for Ireland and Wales as for England and Scotland.

GONORRHŒAL PERITONITIS IN LITTLE GIRLS.

AT the meeting of the Société Médicale des Hôpitaux of Paris on May 24th Dr. M. J. Comby and Dr. Gadaud called attention to a complication of the vulvo-vaginitis of children—gonococcic peritonitis. In consequence of the rarity of this complication its connexion with the vulvo-vaginitis, which may be trivial or overlooked, may not be noticed and the peritonitis may be regarded as the result of perforation or appendicitis. Dr. Comby and Dr. Gadaud related three cases in which the latter condition was regarded as the cause of the peritonitis. Case 1. A girl, aged 12 years, was admitted to hospital on Sept. 25th, 1900, for typhoid fever. The attack was severe and lasted for 36 days. The temperature became normal on Oct. 13th and convalescence began. On Nov. 14th pyrexia (102·8° F.), headache, and vomiting suddenly appeared, and the child complained of acute abdominal pain. On the 15th the pain was still violent and the abdomen was exquisitely tender and tympanitic. She lay immobile in the dorsal decubitus position with the thighs flexed on the abdomen. The face was pale and anxious, the lips were blue, and the extremities were cold and cyanosed. The temperature was 100·4° and the pulse was 145. There were vomiting and diarrhœa. No special signs were found at McBurney's point and rectal examination was negative. General peritonitis was diagnosed. The period—the thirty-second day of convalescence—seemed too late for typhoid perforation. A symptom previously unnoticed then attracted attention: there was a greenish vulvo-vaginal discharge. The vulva was red and the labia majora were covered with dried pus. The gonococcus could not be found. The child's condition was so serious that laparotomy was proposed, but recovery took place under medical treatment. Case 2. A girl, aged six and a half years, was admitted to hospital on Nov. 27th, 1900, suffering from pains in the abdomen which began eight days previously with vomiting. There were prostation, algidity, cyanosed extremities, and pale and pinched face. The pulse was 140 and small, and the temperature was 99·5° F. There was an abundant vaginal discharge which had existed for some time and lately had become recrudescent. The gonococcus could not be found. Ice applications to the abdomen, hypodermic injections of morphine, and saline injections were prescribed. In five days recovery was assured. On Jan. 7th, 1901, a relapse occurred. After seven days recovery began. Case 3. A girl, aged six and a half years, entered hospital on Oct. 16th, 1900, with purulent pleurisy secondary to pneumonia. She had recovered by Nov. 15th without other operation than exploratory puncture. On Jan. 8th, 1901, there were acute abdominal pain and diarrhœa. The thighs were flexed on the abdomen which was tense and tympanitic. The temperature was 102·3° F. and the pulse was 180. On the 10th the general state was much graver; the eyes were sunken, the nose was pinched, and the lips were blue. Perforative appendicitis and pneumococcic peritonitis suggested themselves, but a greenish purulent vaginal discharge which contained gonococci was observed. The patient appeared to have contracted the vulvo-vaginitis in hospital, perhaps from a thermometer or a basin. Recovery was complete on Jan. 16th. These three cases were observed almost at the same time in the Hôpital des Enfants Malades, Paris. In the first two cases the vulvo-vaginitis was old or unrecognised and the gonococcus was not found, in the third case the vulvo-vaginitis was recent and the gonococcus was found.

This form of peritonitis is not very rare; a number of cases have been published of which some were fatal. In a case described by Huber of New York appendicitis was diagnosed and the abdomen was opened. At the necropsy salpingitis and a healthy appendix were found. In a case under the care of Baginsky there were salpingo-ovaritis and pus in the pelvis which contained gonococci. The peritonitis of vulvo-vaginitis, in spite of the acuteness and severity of the symptoms, generally terminates quickly in recovery. Hence intervention should not be precipitate. In this form of peritonitis vulvo-vaginitis is generally the last thing to be thought of and the appendix is incriminated. When a little girl suffers from peritonitis the external genitals should always be examined. If vulvo-vaginitis is present the possibility of gonococcic peritonitis should be borne in mind. Its diagnosis indicates abstention from operation.

"THE NEW POOR-LAW INFIRMARY AT HALIFAX."[1]

AT the fortnightly meeting of the Halifax Board of Guardians, held on August 21st, Father Russell, who had given notice that he would move, "That Dr. Dolan be appointed medical officer of the Halifax Union Poor-law Hospital, Salterhebble, at a salary of 100 guineas per annum, this sum not to be included in the superannuation allowance," modified his notice of motion and simply proposed that Dr. T. M. Dolan should be appointed at a salary of 100 guineas per annum. Mr. J. W. Tillotson, the chairman, said that Dr. Dolan had written to the Local Government Board applying to be superannuated then and there, but that the Board had replied that such a course was impossible. Father Russell's motion was rejected by 20 votes to three. So there the matter stands at present. Dr. Dolan keeps his post as medical officer of the workhouse and the board of guardians are trying to get three medical officers for the new infirmary. The senior medical officer is to be the responsible officer of the three and is to have a salary of £105 per annum, while he is to take the appointment subject to the duties being hereafter defined. We await further developments with interest.

THE SYMPTOMS OF POISONING BY FUSEL OIL.

DR. THOMAS B. FUTCHER of Johns Hopkins University records in the *New York Medical Journal* of August 3rd two cases from the clinic of Professor Osler of the somewhat rare condition of poisoning by "fusel oil," an ingredient of crude spirits. The cases recorded in medical literature are very few. Dr. W. M. Ord reported a case at St. Thomas's Hospital in 1889,[2] and Dr. J. Swain[3] recorded a fatal case at the Bristol Royal Infirmary in 1891. Fusel oil is the common name for primary amyl alcohol ($C_5H_{11}OH$) mixed with primary and secondary propyl alcohols. In England it goes by the name of "faints," and can be obtained gratis from some distilleries. Fusel oil is popularly used as an external application for rheumatism. It is obtained from fermented grain or potatoes by continuing the process of distillation after the ordinary "spirit" has ceased to distil over, and forms an oily liquid with a burning acrid taste and an odour said to resemble jargonelle pear. It has intoxicating and poisonous properties superior to those of ordinary spirits, and is said to be known in some of the northern counties of Europe to the consumers of corn brandy who frequently ask to be served with a "glass of good fusel." The two cases recorded by Dr. Futcher are as follows:—Case 1 was that of a woman, aged 28 years, who was admitted to the Johns Hopkins Hospital at about midnight, complaining of general weakness. It was found that in company with a male (Case 2 *infra*) she had been drinking out of a six-ounce bottle of fusel oil during a debauch and was lying unconscious on the floor. At 9 A.M. next morning she had a headache, coated tongue, and a bad taste in the mouth, and suffered from general weakness. Her forehead was red from rubbing it, as she stated, with fusel oil a day earlier. There was a slight bronchitis. The pupils were normal in reaction and an estimation of the blood showed 4,500,000 of red corpuscles and 7000 leucocytes per cubic centimetre. The urine was of a pale yellow colour and slightly hazy, with a white precipitate, and exhaled "a peculiar odour resembling violets." There was a faint trace of albumin, and on testing with Fehling's solution sugar was found to be present. Tests with phenylhydrazine and with yeast confirmed the presence of sugar, but the polariscope showed that it was not glucose (dextrose) as the solution was lævo-rotatory. Next day the urine was free from sugar, but a trace of albumin persisted for a day or two longer. She was discharged as recovered after four days. Case 2 was that of a man, aged 28 years, who was admitted into the hospital at the same time and under the same conditions as the above patient. His temperature was 100° F., the pulse was 120, and the respirations were 48 per minute. The right arm showed impairment of sensation and the right leg showed loss of power and an excessive knee-jerk. He gradually improved in hospital, though the muscular and sensory impairment persisted for four or five days. He was discharged on the sixth day. His urine had a dark brown "smoky" appearance with a "peculiar aromatic fruity odour." It gave the same chemical reaction for sugar as did the urine in the previous case, but was inactive to polarised light. Methæmoglobin was also present in the urine with a few broken-down red corpuscles. The sugar disappeared from the urine during the second day. The presence of sugar in both these cases was a peculiar and very rare feature.

VERMINOUS HOLLOWAY GAOL.

COMPLAINTS have recently been heard from unfortunate prisoners of the filthily verminous condition of Holloway Gaol, and the forcible remarks of Alderman Sir Joseph Renals, sitting at the Mansion House Police-court, led recently to an interview between his worship and the chairman of the visiting justices of the prison. Correspondence on the subject is also said to be proceeding between the visiting justices and the Prison Commissioners. The case which particularly called attention to what constitutes a serious scandal was that of a man remanded under a charge of obtaining goods by false pretences—that is to say, of a man neither convicted of a crime nor temporarily imprisoned in a cell constantly used by many different occupants brought in at random from the streets, as is the case with cells at London police-stations. The condition of this prisoner's face was such that Sir Joseph Renals, on his attention being called to it, remarked that he had noticed it and had thought that the prisoner must have had small-pox. Whatever remedies may be suggested and whatever means of prevention may be adopted in future it will hardly, we hope, be suggested that the state of things apparently existing in one of our principal metropolitan prisons—an establishment which ought to serve as a model for the imitation of similar institutions in this country—is either inevitable or anything short of disgraceful. Many prisoners no doubt come into Holloway Gaol with vermin upon them. We are not aware of the precise arrangements as to the cleansing of the persons and clothing of the unconvicted, but it is, we believe, possible to deal to some extent with those who are obviously in need of purification, while even if we grant that insect life must often be found where dirty people have been, we are still a long way from admitting that insects need be left to breed and to multiply undisturbed in a

[1] See THE LANCET, August 17th (p. 462) and 24th (p. 540), 1901.
[2] THE LANCET, Dec. 14th, 1889, p. 1225.
[3] Brit. Med. Jour., 1891, vol. i., p. 903.

place where there is almost unlimited labour at the disposal of the gaol governor. Sir Joseph Renals spoke of the plank beds at Holloway as harbouring vermin. No doubt they do, but insects of the kind referred to do not burrow into solid wood or stone; they take shelter in chinks and crevices, which need not be there for their benefit, and multiply their species if left to do so undisturbed by soap-and-water and other agents obnoxious to insect life—a second condition which, like the chinks and crevices, may exist at Holloway Gaol, but one which is hardly necessary or unavoidable. In the local prisons on the continent, particularly in some countries, we might expect to hear of prisoners suffering as they do in Holloway, while a prisoner in a Boer camp may have much to endure inseparable from his circumstances; when, however, we meet with such a state of affairs in London we wonder whether the institution in question may not in other respects also be behind the sanitary standards of the age, while we are inclined to inquire the name of the person who is to be held responsible. Visiting justices and prison commissioners may deal where necessary with questions of construction of buildings and apparatus, but matters of administration are best presided over by an official endowed with full powers and the knowledge that his continuance in office depends on the proper performance of his duties.

DEATH UNDER AN ANÆSTHETIC.

IT is a great error to imagine that all cases in which death occurs while a patient is under the influence of an anæsthetic are of the same nature. In some cases the anæsthetic is at fault, in some the method of administration; but there are also cases, and they are by no means few in number, in which the condition of the patient is such as to make the administration of an anæsthetic an exceedingly dangerous proceeding. Of course, when possible, the use of a general anæsthetic is avoided. Of all conditions which render difficult the administration of an anæsthetic there are probably few more serious than an empyema. We have been favoured by Dr. W. H. Cooke with notes of a death under an anæsthetic which occurred in the Royal United Hospital, Bath. A man, aged 39 years, but looking at least 55 years of age, was admitted to hospital on April 24th suffering from an empyema of the right side. He had had double pleurisy for a month, and when admitted to the hospital he looked seriously ill. It was decided to operate and the anæsthetic was given four hours after admission. A.C.E. mixture was administered on a Schimmelbusch's mask, the man being on his back. At first he took the anæsthetic well, but after seven or eight minutes he commenced to struggle, and Dr. Cooke remarked that he hoped the operation would not be long as the man was very ill. As the struggling became more violent the anæsthetic was stopped. At this time the heart was beating, the respirations had not ceased, and there was no marked cyanosis; the pupils were not widely dilated, the conjunctival reflexes were present, and he had only had four and a half drachms of A.C.E. Then, quite suddenly, whilst struggling, he fell back dead, both the heart and respiration at once ceasing. Artificial respiration, strychnine, and ether were tried but in vain. At the post-mortem examination it was discovered that the right pleural cavity contained at least two pints of curdy, non-smelling pus, and there were many pleuritic adhesions and the right lung was much collapsed. The left lung was adherent all over and contained much bronchial secretion. There was a little turbid fluid at the left base, but no pneumonic consolidation in either lung. The heart, which was slightly displaced to the left, was large, flabby, and in a state of fatty degeneration; there was no valvular disease. The thorax only was examined. This case is of interest from the fact that the man died whilst taking an anæsthetic, though the death was not due to an over-dose of the anæsthetic. Four and a half drachms of A.C.E. (containing one and a half drachms of chloroform) were administered for about 10 minutes by the open method and the reflexes were never lost. The sudden death was probably due to syncope caused by the struggling in a patient with an empyema and a heart with fatty degeneration. In cases of empyema patients occasionally die suddenly on change of position, especially when under the influence of an anæsthetic, and irrigation of the pleural cavity in empyema is sometimes followed by sudden death. In some of these cases it would be safer to aspirate as a preliminary to a further operation a day or so later, when the patient might be the better able to take an anæsthetic, the heart and lung having to some extent regained their normal positions.

"MEDICALLY UNFIT."

To say that Lord Kitchener must find the variety and amount of work and responsibility inseparable from his position in South Africa as the directing head of an enormous army sufficiently onerous and overwhelming is to state an obvious platitude. But we find that Lord Kitchener has felt himself called upon amid the distractions of warfare to forward a despatch to this country protesting against the great and needless trouble that has arisen from two causes—first, that large numbers of men of the new Imperial Yeomanry have been sent for service in the field who were practically untrained and therefore unfit for it, and secondly that hundreds of these recruits have been sent out suffering from complaints and physical disabilities that the most cursory medical examination would have detected, who are filling the hospitals and are afflicted with such diseases as varicocele, affections of the heart, deafness, lameness, and defective vision, there being even one case of partial paralysis—all diseases totally unfitting the sufferers for service in the field, and in every case of such long standing that the men must have been so afflicted before passing the medical examination. There was only one thing to be done with them—namely, to discharge them as "medically unfit" and promptly to send them home again as invalids. To some extent the same neglect seems also to have characterised the raising of the first drafts of the South African Constabulary. Lord Kitchener is quite right in saying that such occurrences could not have happened if a methodical medical examination such as is laid down in the regulations had been carried out. We understand that an official inquiry into the matter will be instituted by the Commander-in-Chief and that as regards the South African Constabulary the Colonial Office will deal with it; and we are very glad to hear it. With regard to the complaint about men having been sent out who were untrained and unprepared for field service we have nothing to do; it concerns the military authorities and the purely military branch of the service. But with those found medically unfit on their arrival in South Africa the case is different. While making every allowance for occasional mistakes and oversights where reinforcements are urgently needed and men are hurriedly enlisted and the medical examinations have to be quickly, and consequently in some cases perfunctorily, performed, we cannot admit that there was any excuse for men being passed in a medical inspection as fit where such physical disabilities and complaints existed as are in the present instance alleged to have been present. Assuming the correctness of these allegations—and provided that substitutes were not used to personate recruits—there must, we think, have been manifest blundering or gross carelessness somewhere—indeed, as we cannot understand how such physical defects and disabilities could have escaped notice we are inclined to think that there must be some explanation forthcoming, because we hesitate to

believe that some of the cases could, as a matter of fact, have been medically examined at all. As all these medical inspections must have been conducted, and the lists of them signed, by military medical officers or by members of the civil profession who passed the men, there should presumably be no difficulty in tracing those who are responsible, and in our opinion this course should be at once adopted. It would be interesting to know whether any special orders were issued to the examining surgeons not to be too particular but to pass as many men as possible.

SPRAYING POTATOES WITH SULPHATE OF COPPER.

IN our correspondence from Ireland an account is given, of great interest to agriculturists as well as to medical men, of a hitherto unrecorded risk of poisoning by sulphate of copper through the spraying of potatoes. In Ireland, as, indeed, is the case now in most temperate climates, the potato is a staple article of food and is cultivated with the greatest care; but, unfortunately, it is liable to be attacked by a most destructive disease caused by the parasitic fungus "phytophthora infestans," which, like the potato itself, was introduced from America but at a later date—1840. The fungus attacks the stem and leaves as well as the tubers; it appears first on the stem and leaves, as a rule about the end of July or the month of August. When confined to the stem and leaves it causes them to turn brown and eventually black, totally destroying their tissues, hence from their withered aspect the disease has been termed the "potato blight." Finally, the tubers are attacked and decay with dry or wet rot. As a result anyone driving through the country at this time of year can, if the disease is prevalent, detect its presence by smell and so by some it is called the "potato rot." The disease prevails especially when the weather is both warm and wet. It was the total failure of the crop in 1849 through this blight that contributed largely to the Irish famine of that period. To prevent its occurrence new seed has from time to time been introduced. The seventh Duke of Marlborough (grandfather of the present peer), when Lord Lieutenant of Ireland, took a warm interest in this question and his gifted son—the late Lord Randolph Churchill—made one of his earliest and most brilliant speeches in the House of Commons in the "seventies" on the question of seed potatoes. In more recent years, however, attempts have been made, with the greatest success, to prevent the potato disease by spraying the stems and leaves of the plant, generally about July, with a fluid which is destructive to the fungus. The material used is, as a rule, sulphate of copper, but it is evident from the occurrence near Ballymena of a fatal case in a person employed in spraying that in carrying out this preventive measure precautions must be used. These are (1) that persons using the spray should not have wounds or sores on their hands; (2) that they should always wash their hands after spraying or should wear long-armed gloves; (3) that they should try not to breathe or inhale the vapour, or should wear a respirator; and, finally, (4) that they should not blow down the tube of the sprayer. This is the first case of the kind recorded.

MUNICIPAL AUTHORITIES AND THE FEEDING OF INFANTS.

THE municipal authorities of Norwich, as well as their medical officer of health, Dr. H. Cooper Pattin, are to be congratulated on their initiative in circulating for the instruction of mothers a most comprehensive and practical leaflet on the subjects of infant feeding and the prevention of diarrhœa. The ignorance which prevails among the majority of women of the lower orders on these subjects is absolutely appalling, and we as a profession cannot entirely absolve ourselves from blame for this most regrettable condition of affairs, for to a very large extent we have allowed the control of infant dietetics to pass from our hands into those of the vendors of proprietary foods whose chief object has been to sell the products of their manufacture and not to consider the ultimate welfare of the individuals for whom they cater. The leaflet which Dr. Pattin has drawn up for the instruction of mothers is thoroughly practical and to the point. He rightly insists that the best food for an infant is healthy mother's milk, but that when this supply is not available the only proper and reliable substitute is modified cow's milk. He also supplies full directions for preparing the same in accordance with an infant's requirements during the different periods of its life, and further, he warns parents against attempting to supply any other kind of food without explicit direction from the medical attendant. The question of infant feeding is undoubtedly one of national importance, because it is during the first year of life that the constitution of an individual is largely determined, and because, apart from hereditary influences, the method of feeding adopted during these early months of life is the chief contributory factor in the determination of a constitution which is sound or the reverse. Until such time as the nation realises its responsibilities with regard to this question it is only by the independent energy of our medical officers of health that any direct pressure can be brought to bear upon mothers or other individuals who are entrusted with the care of infants. That success can follow so simple and inexpensive an expedient as the distribution of a leaflet of directions for the feeding of infants has been already clearly proved in the case of Darwen; in this town the medical officer of health, Dr. F. G. Haworth, some years ago drew up a series of regulations somewhat similar to those now adopted in the case of Norwich and took means to see that at the time of registration of birth the parents of each child were provided with a copy of his most carefully worded directions. The result has been in every way satisfactory. We hope that ere long this most salutary precedent on the part of Norwich and Darwen will be followed by all municipal authorities throughout the country.

A YEAR'S RAILROAD CASUALTIES IN THE UNITED STATES.

FROM the annual report of the United States Interstate Commission we learn that the total number of casualties to persons on account of railway accidents during the year ending June 30th, 1900, was 58,185; the aggregate number of persons killed was 7865, and the number injured was 50,320. Of railway employés, 2550 were killed and 39,643 were injured. With respect to the three classes of employés these casualties were distributed thus: trainmen—killed, 1396; injured, 17,571; switchmen, flagmen, and watchmen—killed, 292; injured, 3060; other employés—killed, 882; injured, 5229. The corresponding figures for the preceding year were: killed, 260; injured, 6765. The accidents from coupling and uncoupling cars are divided as follows: trainmen—killed, 188; injured, 3803; switchmen, flagmen, and watchmen—killed, 77; injured, 1264. In other employés—killed, 17; injured, 162. The casualties caused by falling from trains are classified as follows: trainmen, killed, 412; injured, 3359; switchmen, flagmen, and watchmen—killed, 45; injured, 501; other employés—killed, 72; injured, 565. The casualties among the same three classes of employés from collisions and derailments were as follows: trainmen—killed, 380; injured, 1867; switchmen, flagmen, and watchmen—killed, 11; injured, 141; other employés—killed, 70; injured, 445. The number of passengers killed during the year was 249, injured 4128; the corresponding figures

for the preceding year were—killed, 239; injured, 3442. Collisions and derailments caused 88 deaths and the injury of 1743 passengers. The total number of persons other than passengers and employés was—killed, 5066; injured, 6594; these figures include casualties to those called trespassers, of whom 4346 were killed and 4680 injured. The total number of persons killed at highway crossings was 750, the injured numbered 1350, as follows: employés—killed, 20; injured, 53; passengers—killed, 1; injured, 3; other persons trespassing—171 killed; 204 injured; not trespassing—killed, 558; injured, 1090. To summarise, the figures show that out of every 399 employés one was killed and one was injured out of every 26. With reference to trainmen—including in that term enginemen, firemen, conductors, and other trainmen—it is shown that one was killed out of every 137 employed and one injured out of every 11 in service. One passenger was killed out of every 2,316,684 carried and one injured in every 139,740 carried. The summary shows that in the course of 13 years ending June 30th, 1900, in consequence of railway accidents 86,277 persons were killed and 469,027 persons were injured. The injuries reported varied from comparatively trivial injuries to those of a fatal character.

"OZONE IN THE RAILWAY CARRIAGE."

OUR remarks in an annotation under the above heading in THE LANCET of August 24th, p. 439, upon the probable advantages which would be gained by the ozonisation of the air of railway carriages have been subjected to considerable comment in the lay press. Some writers have considered the scheme impracticable on account of the enormous cost of oxygen and have estimated that this alone on the Underground Railway would be close upon a million sterling. We never suggested pure oxygen for the purpose, and, indeed, it is not necessary, the oxygen of the air would be ample. Others state that if air were used for the production of ozone, nitrous and nitric acids would be formed. Where strong ozonisation is proceeding it is true that a very small amount of nitrogen oxides is produced, just as when a flash of lightning discharges through the air, but this amount is quite insignificant in a small apparatus automatically deriving its current from the dynamo attached to the carriage wheels. We have further seen it stated that so efficient is the ventilation of the "tube" and other underground electric railways that the ozonisation of the air of the carriages would be a perfectly superfluous step. Travellers by these railways know perfectly well that the air in these subterranean places has not grown pleasanter as the popularity of the system has increased. It is sickly and a sense of relief is experienced on gaining the outside air. This should not be so if ventilation is efficient. A curious objection has been raised in one contemporary to ozone on account of its *sub-acid* smell. We have never noticed it but then we have never yet recognised a smell of this description.

DEATH OF PROFESSOR ADOLF FICK.

THE announcement of the death of the well-known physiologist, Dr. Adolf Fick, the late professor of physiology at the University of Würzburg, will be received with regret. Professor Fick was born at Cassel on Sept. 3rd, 1829, and died rather unexpectedly at Blankenberg on August 21st. He pursued his studies in Marburg and in Berlin and graduated in Marburg in 1851. In 1856 he accepted the post of professor of physiology at Zürich and in 1868 was offered and accepted the chair of physiology at Würzburg, which he held till his superannuation a few months ago. He was the author of many works, the chief of which will be found mentioned below. He was best known in this country for his "Medical Physics," which was originally published in 1856 in Brunswick as a supplement to the "Lehrbuch der Physik" of Müller-Pouillet, the third edition of which was published in 1885; by his treatise on the "Anatomy and Physiology of the Organs of Sense," published at Lahr in 1864; and by his numerous essays on muscle, one of which, recording his ascent of the Faulhorn in company with Dr. Wislicenus, is quoted in many works on physiology. In that important experiment he supplied strong evidence to show that violent and protracted muscular effort is not attended with any marked increase in the quantity of urea eliminated from the system, and hence that the muscles themselves do not suffer wear and tear but, like the mechanism of a steam-engine, are only the agents enabling the energy generated by the oxidation of the fuel, which in the body consists of the carbohydrates and fatty compounds, to be advantageously applied. Professor Fick was a man of high cultivation and greatly esteemed by the large circle of friends whom the prominent position that he held in the University of Würzburg for so many years had gathered around him. Amongst his numerous works may be mentioned his Researches on the Electrical Stimulation of Nerves, Brunswick, 1864; Researches made in the Physiological Laboratory of the University of Zürich, Vienna, 1869; The Circulation of the Blood, Berlin, 1872; Researches made in the Physiological Laboratory of Würzburg, Würzburg, 1872–1878; articles in Professor Hermann's "Handbuch der Physiologie," including one on Special Movements, others on Dioptrics, on the Accessory Apparatus of the Eye, and on the Phenomena of the Sensation of Light. He also wrote essays on Mechanical Work and the Production of Heat during Muscular Action; on Cause and Effect; and on Probabilities. He was, lastly, a frequent contributor to the leading scientific reviews.

A MUDDLING MEASURE OF BEER.

IT is one of the curious inconsistencies of English ways that the comparatively heavy beers, such as stout and ale, are sold by a liberal standard, while the lighter beers, such as lager beers, are commonly sold in accordance with a much smaller standard. Thus the "small" lager is much less than a half-pint of ale, and the "large" lager is much less than a pint of beer. Considered from an alcoholic, and therefore temperance and health, standpoint, it is a pity that this custom cannot be exactly reversed—that the light beer cannot be sold in pints and half-pints and the heavy beers as "large" or "small" on the same system as lager beer is now sold. As it is, however, a "small" or "large" bitter is never called for any more than is a half-pint or pint of lager. It would "inconvenience" the trade, we should probably be told, to adopt this order. Again, the usual price demanded for a "small" lager is 3*d*., while for a half-pint of beer it is 2*d*. (or three-halfpence, according to the class of counter over which it is sold). The amount of alcohol in the former case would be about one-seventh of an ounce, while in the English beer it would be about half an ounce, and yet 50 per cent. more money is demanded for the lager beer. A "small" lager commonly measures not more than one-third of a pint and a "large" lager not more than three-quarters of a pint, these figures corresponding to about 0·20 litre and 0·50 litre respectively. The introduction of lager beer on draught into this country brought with it the adoption of metric measures of capacity, vessels of a capacity of 0·50 and 0·20 litre being officially approved. Unauthorised measures have, however, been in use for some time as follows:—0·25, 0·30, 0·35, and 0·40 litre. A proposal arose eventually that these measures should be discontinued and that 0·20 and 0·50 litre should be alone recognised as lawful. Some objection, however, was raised against this proposal by the trade, with the result that it was required that when lager beer was sold in quantities less

than half a pint the vessels need not be stamped unless they were marked. Unmarked vessels containing less than half a pint need no official verification. When the capacity exceeds half a pint the vessel is bound to be stamped in accordance with the standard imperial or metric measures. The representation of the trade, therefore, met with success. But the plan anyhow is muddling which allows vessels to be graduated officially by two systems of measure, the imperial and the metric. We may be confident that for lager beer the latter system will be generally retained since it is least understood. It cannot be imagined for a moment that the sale of lager beer in half-pint and pint measures will be adopted—it would "inconvenience" the trade. We cannot understand in the least why it should be considered necessary that the metric system should be recognised for the sale of one kind of beer and not for another. And it just happens that the light beers are sold at a high price by a small standard of capacity and the comparatively heavy beers at a low price by a large standard of capacity—a system which is just exactly the reverse of the requirements of common sense and one that is directly opposed to the growth of temperate habits.

THE TREATMENT OF ANEURYSM BY INJECTIONS OF GELATINE.

THE recent deaths of two patients in Guy's Hospital from tetanus occurring while they were undergoing a course of treatment by injections of a solution of gelatine formed the subject of inquiries held by Dr. F. J. Waldo on August 26th. For some unexplained reason some of the daily papers reported these inquests under a heading or sub-heading which included the word "experiment" or "experimental." Without wishing in any way to minimise the unhappy result we must point out that there was nothing experimental—except in the sense in which all and every treatment is experimental as being tried upon a new patient—about the method. It was introduced some three years ago by Professor Lancereaux of Paris[1] and has been successful in a good many cases, while of the three patients treated in Guy's Hospital one has apparently recovered completely, and the two patients who so unfortunately died did so from an accidental circumstance, though none the less lamentable. The tetanus bacillus may infect any wound. Every precaution was taken in the sterilising of the injections and the instruments used, and the jury, after a patient hearing, decided that the medical officer in charge of the case was exonerated from all blame. Inoperable thoracic aneurysm is a disease so distressing to the patient and so uniformly fatal that it would be a thousand pities if a treatment which has already given good results should be looked at askance because of the unforeseen having happened.

TUBERCULOSIS, BOVINE AND HUMAN.

THE most sensational episode at the recent Congress on Tuberculosis was undoubtedly the statement made by Professor Koch in which he threw doubt upon the communicability of tuberculosis from animals to man. The challenge thus thrown down has been eagerly taken up by various observers, and the controversy will continue to rage until further and numerous investigations have shown whether or no the human species can be infected with tuberculosis from the flesh and milk of tuberculous cattle. We print this week an important communication by Professor Hueppe, a perusal of which we recommend to our readers. He commences by drawing attention to Professor Koch's announcement, to which we have just referred, as being in direct opposition to his previous teaching, and argues that if Professor Koch is correct the measures hitherto taken against bovine tuberculosis must therefore be in the first place too severe and in the second place of no avail for the suppression of human tuberculosis. Professor Hueppe then proceeds to review the investigations which he himself has made on the subject and the results obtained which oppose those of Professor Koch. There are many points in this paper which will attract attention. Professor Hueppe ascribes the histological differences which exist between miliary tubercles in the human subject and the tubercles of perlsucht in the ox to a dissimilarity in the inherent quality of the tissue, and further maintains, as Professor Virchow discovered long ago, that the distinctions which Koch has now found to exist are concerned with quite different things—the one with the inherent quality of the structure, the other with the remote or ultimate developments dependent thereon; and the facts, he says, ascertained with regard to one of those do not necessarily serve for the elucidation of the other. One other remark is worthy of note, namely, that whilst the minutest difference in the organisms in cholera and now also in tuberculosis are enlarged upon by many bacteriologists in order to build up on them a theory of differences in species, in diphtheria the same investigators completely ignore constant and much greater differences in the bacteria. Professor Hueppe provisionally considers that the only thing that is certain is that the "so-called tubercle bacillus" adapts itself to the particular member of the animal kingdom which happens to be its host, and that when it has so adapted itself and has, for instance, become pathogenic for man, in that case it is not quite pathogenic for another kind of host, such as the ox; but, he adds, this limitation cannot be practically defined. He therefore urges, and we consider very rightly so, that the struggle against bovine tuberculosis should be carried on unremittingly, both on account of the economic danger and also because he still believes that the danger of bovine tuberculosis to mankind has not been disproved.

[1] THE LANCET, vol. ii., 1898, pp. 1092, 1299, 1369.

THE PUBLIC CONTROL DEPARTMENT OF THE LONDON COUNTY COUNCIL.

IN spite of, or possibly because of, Parliament, the London County Council, the metropolitan boroughs, and the lighting and water companies, London is possibly the most inconvenient and most untidy city of Europe. The streets are either muddy, slushy, or dusty; they are littered with straw, cabbage-leaves, newspaper posters, and omnibus tickets; they are constantly being grubbed up for some reason or other; barrels of beer, coals, and other goods are delivered across the footways at all hours of the day; omnibuses are allowed to block the streets pretty much as they please, and chimneys are allowed to make the air filthy because they "cannot get Welsh coal." And yet the annual return of the chief officer of the Public Control Department of the London County Council for 190[illegible]1 shows a gigantic amount of work. A glance at the contents page shows such subjects as lamp accidents, boiler explosions, the sale of bread, coal, and coke, inquests, diseases of animals, gas-testing, infant-life protection, petroleum Acts, weights and measures, rabies, and the smoke nuisance, to mention only a few. As regards rabies no case has occurred in London since 1898 and the last case of hydrophobia returned (of course, this means in a human being) was in 1896. The section of the report dealing with smoke nuisances is interesting. It points out that the Acts under which prosecutions may be taken practically only deal with black smoke, and also that the County Council can only deal with cases where a sanitary authority is in default. Any person, however, may make a complaint. With regard to

smoke from railway engines we notice that the South-Eastern and Chatham Company were reported no less than 148 times during the year ended March 31st, 1901, the next most prominent offender being the London and Brighton Company which was reported 82 times. During the period under consideration there were 25 fatal accidents from petroleum lamps, involving a loss of 26 lives. In the coroners' courts there were held in all, during the year 1900, inquiries to the number of 8027 and there were held post-mortem examinations, exclusive of those held in hospitals, to the number of 4138. The hospital cases, in which presumably a post-mortem examination was carried out in every instance, numbered 977. The report is of great interest, but so long as London is governed by, or rather is dependent for its due regulation upon, a number of bodies all independent of each other, so long will nuisances of various kinds continue. We make no suggestion as to who should be the governing body, but that there should be one is certain.

THE DISTRIBUTION OF PLAGUE.

A TELEGRAM from the Governor of the Cape of Good Hope, received at the Colonial Office on August 22nd, states that, for the week ending August 17th, the new cases of plague in the Cape Peninsula number 0; at Port Elizabeth, coloured persons 2, natives 1, all other places 0; there were no deaths. At Port Elizabeth the deaths were as follows: coloured persons 1, natives 1, total 2; all other places 0. The total cases of plague up to August 17th were as follows: Cape Peninsula 735, Port Elizabeth 43; all other places 10. The total deaths from plague up to August 17th were as follows: Cape Peninsula 357, Port Elizabeth 18; all other places 2. The area of infection remains unchanged. The cases of plague in persons under naval and military control number 1—viz., that of a male native from the Remount Camp at Port Elizabeth. With regard to Hong-Kong, a telegram from the Governor received at the Colonial Office on August 23rd, is worded as follows: "Bubonic plague in Hong-Kong not epidemic; clean bills of health issued." In Egypt for the week ending August 18th 6 cases of plague and 3 deaths from the disease have been reported. One case, a fatal one, occurred at Port Said in a native, the other 5 cases were all European.

WE regret to announce the death from malignant disease in his seventieth year of Surgeon-General v. Coler, head of the Prussian Army Medical Corps, which took place at Berlin on Monday last, August 26th.

THE CHEMISTS' EXHIBITION.—The seventh annual Chemists' Exhibition, organised by the *British and Colonial Druggist*, was held at Covent Garden Theatre from August 28th to 30th. In addition to the usual display of drugs, perfumes, special foods, and other appliances incidental to the druggist's calling, there were some interesting novelties on this occasion. Perhaps the most striking was the enormous soda fountain, the ingenious invention of an American firm, which bids fair to become universally installed in hotels, restaurants, and other places in this country. It practically provides an unlimited supply of highly-charged soda-water, which, at the same time, may be kept cool by contact with ice. A number of various effervescing beverages may obviously be prepared by this means. Another striking exhibit consisted of a great number and variety of sponges representing a value of over £10,000. The floor of the great theatre presented a curious spectacle not unlike that of an Oriental bazaar. There was a good deal to see of interest to medical men, the members of hospital staffs, nurses, and so on. The attendance, however, did not appear to be very large, which is not surprising since the holiday season is just now in very full evidence. It might be thought that the organisers would have deemed it expedient to arrange another and a more suitable time for the exhibition which possesses interest for a wide *clientèle*.

TUBERCULOSIS, BOVINE AND HUMAN.[1]

BY FERDINAND HUEPPE.

(*Translated for* THE LANCET.)

ACCORDING to the published reports describing the International Congress on Tuberculosis held in London Robert Koch made a communication on the subject of bovine tuberculosis which fell on the meeting like a bomb-shell. From his recent researches it appears, in direct opposition to his previous teachings, that the tubercle bacillus of the human subject is not communicable to cattle and similarly that bovine tuberculosis is not dangerous to man. The measures hitherto taken against bovine tuberculosis must therefore be in the first place too severe and in the second place of no avail for the repression of human tuberculosis. Therefore, at one time the public peace of mind is disturbed by a display of the heaviest scientific artillery, backed by conclusive laboratory experiments, and then all at once the public peace of mind is again disturbed by still more conclusive laboratory experiments proving the very opposite.

For the general public most encouragement has for years been obtainable from the recognition of the important bearing which a tendency to the disease has on the development of the disease after inoculation with it has occurred. This most important side of the whole question was strangely left out of the discussions at the Berlin Congress on Tuberculosis, being only occasionally touched upon by a few speakers. This side of the question was also completely neglected by Koch in London and sufficient importance was not given to it by the speakers who were unable to follow Koch's views. Koch found, as had been ascertained beyond a doubt by American observers some years ago, that the human tubercle bacillus did not affect the ox and he probably tried to make out that conversely the tubercle bacillus of the ox is not infectious for man—that, in fact, the two organisms are not of the same species but are specifically different. The question is therefore only a bacteriological one and is not concerned with a scientific etiological interpretation of the experiments. But it cannot be known even whether this inference was not premature because the experiments were not carried far enough. The breed of the cattle which the human tubercle bacilli did not affect has still to be precisely ascertained. Even in this one must proceed cautiously. When it was proved by the researches of Bollinger, Kitt, and myself that what had been previously regarded as splenic fever of swine was a different scepticæmia and produced by quite a different species of bacterium the opinion was entertained that splenic fever did not affect the pig, and yet some breeds may be successfully inoculated with the disease. Is it therefore surprising if I ask that this point of view should be considered in the case of the cattle and pigs which serve for the experiment with tubercle bacilli? Unfortunately, I cannot do more than draw attention to this, for the arrangements and resources of my laboratory do not permit me at present to take part in these costly experiments. The accounts that have hitherto been made public lead me to believe that Koch's experiments have not been carried far enough to justify his conclusions and I must expressly keep open the possibility that the human tubercle bacillus may perhaps be able to affect some breeds of cattle, especially as before the discovery of the tubercle bacillus Bollinger had once with tuberculous material from the human subject produced true bovine tuberculosis in the calf.

But is it possible from such negative experiments on the transmission of disease to form a perfectly definite opinion as to the identity or non-identity of the exciting causes? Certainly not. For in the interpretation of the results cause and effect move in a circle according to the position which bacteriological orthodoxy happens to take up and that which has to be proved is regarded in advance as a certainty. Only the "Exposition" is taken into account, the meaning of this being that care is taken to render infection possible. This, however, is always the case in experimenting with the injection of living virulent bacilli in considerable quantity. In consequence of this Koch once more draws all

[1] The title of the original is "Perlsucht und Tuberculose." The word "Human" has been added by the translator for the sake of greater clearness in English. It will be seen that a part of Dr. Hueppe's argument turns upon the existence of more than one variety of bovine tuberculosis (Koch ..... bei Rindern nur Tuberculose, aber nicht die für das Rind eigenartige Pleuratuberculose die sog. Perlsucht erzielte).

the fallacious inferences which arise from regarding an inoculated disease as a natural infection. And yet these things have very little to do with one another, as we know in a laborious work of 40 years.

The tubercle bacillus of man has no hold on the ox, consequently the tubercle bacillus of man and of the ox are different species! It is the same fallacious inference as Mafucci and Koch arrived at in connexion with the difference of the bacteria of mammalian tuberculosis and avian tuberculosis. These bacteria really show in their cultures distinct differences such as are not found in bacilli of different species occurring in mammals. Nevertheless, they belong to one species as obvious modifications dependent on differences of nutrition or situation. F. Fischel and myself have by purely cultural methods changed the one modification into the other and have so altered them that mammalian tuberculosis took effect on fowls and the bacteria of avian tuberculosis took effect on mammals. We have also ascertained that true mammalian tuberculosis occasionally occurs in birds (pheasants), and that true avian tuberculosis occasionally occurs in mammals (monkeys; Nocard also observed it in the horse).

And now Koch wishes us to make an intellectual sacrifice and asks us to believe that the bacteria of human and bovine tuberculosis which culturally stand near together, or, rather, are not to be distinguished, must be regarded as wholly and entirely distinct because they did not act reciprocally in his experiments on animals.

I might perhaps allude to this, that with the bacilli of bovine tuberculosis Koch produced in cattle only tuberculosis, but not the tuberculosis of the pleura peculiar to the ox—the so-called Perlsucht; his experiments, therefore, in the sense of his special interpretation, did not even prove that bovine tuberculosis affects the ox. The tubercles of Perlsucht are something so exceptional that Virchow over and over again enlarged upon their peculiarities; at one time he even did not consider them to be tuberculosis at all.

The histological differences between miliary tubercles in the human subject and the tubercles of Perlsucht in the ox, which differences, however, the majority of pathological anatomists do not deem of such importance as Virchow does, indicate a dissimilarity in the inherent quality of the tissue; but whether this inherent quality will attain its remote or ultimate developments by easy processes or by difficult ones, by the operation of pathogenic agencies of like kind or of unlike kind,—on these points the histological appearances supply no data for the formation of an opinion. Only bacteriological experiment can throw light upon the question of communicability and can explain whether in the course of inoculated disease or natural infection a biological or morphological modification and adaptation of a parasite of like kind takes place or whether only parasites of unlike kind have to be reckoned with. The differences which Virchow discovered long ago and the distinctions which Koch has now found to exist are concerned with quite different things—the one with the inherent quality of the structure and the other with the remote or ultimate developments dependent thereon—and the facts ascertained with regard to one of those do not necessarily serve for the elucidation of the other.

Many years ago I was the first to point out that with identical staining the tubercle bacilli of Perlsucht had a somewhat different form from those of human tubercle and had a certain amount of resemblance to the lepra bacilli of the human subject. Other observers also came upon this fact unintentionally, but on account of the opinions held by Koch at that time it was not recognised or not attended to, as, to give an instance, is shown by old photographs taken by C. Fränkel and Pfeiffer in Koch's laboratory. I have, of course, explained this slight variation of form as an effect of the parasite adapting itself to the special kind of nutriment which the ox supplies.

The pathological anatomist and the bacteriologist have, therefore, known for a long time that there were peculiarities in bovine tuberculosis, so that it did not surprise us when some years ago American observers announced the additional fact that bacilli from the human subject did not in general act upon the ox, as Koch has just now ascertained.

Experiments were also performed long ago which gave us more information than Koch has done. If specific differences or long and thorough adaptations to varying conditions occur they generally take a firm hold, and it is therefore, for instance, culturally or by experimental communication to animals a difficult matter to eliminate the differences between mammalian tuberculosis and avian tuberculosis. The case is, however, quite otherwise with respect to the tuberculosis of different mammals. In cultures they behave similarly. There are no difficulties whatever in the experimental transfer of such cultures from quite different mammals to appropriate animals—for instance, to guinea-pigs or rabbits; they all take immediately and to all appearance equally well, the only thing is that different quantities are often used. But in this respect the distinction between cultures from different genera of our domestic animals is not greater than between different cultures from the same genus. The cultures show varying degrees of virulence and in this particular almost no difference is recognisable between the tubercle bacilli of different mammals. Moreover, a method employed by Weleminsky may put us into a position to make quantitative work with tubercle bacilli more precise and thereby to improve the measurement of virulence with respect to rabbits and guinea-pigs. But that which we now know permits us already to conclude with certainty that as in cultures so also in the bodies of our small animals used for experimental purposes a complete elimination of whatever original differences there may be immediately takes place. But this is only possible if the exciting causes of mammalian tuberculosis, and especially the exciting causes of human and bovine tuberculosis, are identical in kind.

Strangely enough, the minutest differences in cholera and now also in tuberculosis are enlarged upon by many bacteriologists in order to build up on them a theory of differences in species, while in diphtheria the same investigators completely ignore constant and much greater differences in the bacteria.

This being established it naturally follows that the facts once more brought into prominence by Koch and his misinterpretation of the phenomena are understood, and the practical advice is given to the authorities that they should persevere with approved measures for the repression of tuberculosis in the lower animals.

As experiment immediately shows, the organism of the rabbit and guinea-pig eliminates possibly existing differences and to some extent transforms bacilli derived from the human subject or from cattle with their special features into rabbit bacilli or guinea-pig bacilli respectively, and after a few passages through the animals only the last and nothing whatever of the first are any longer to be found. The case is similar if the bacteria are continuously inoculated only upon man or upon the ox. They must adapt themselves to the media on which they grow, and if this happens they then take a firmer hold and show those peculiarities chiefly or predominantly, but these are not specific properties. The specific identity of the organism which excites mammalian tuberculosis is not abolished by virtue of these peculiarities connected with nutrition to which the parasite adapts itself physiologically and morphologically.

In tuberculosis the prospects of artificial immunisation and the preparation of antitoxins are very unpromising, but the small amount which has been collected on the subject, especially some experiments by Behring, show that even in the sense of mutual antitoxic influence the organism which excites bovine tuberculosis must be specifically identical with that of the other forms of mammalian tuberculosis.

A natural infection supposes that the infecting parasite meets a susceptible individual belonging to a susceptible species under favourable conditions. Otherwise there is no illness. In our case the infecting parasite is the tubercle bacillus, which, according to facts verified by me, is not a bacillus at all, but the parasitic growth-form of a pleomorphous fungus. As far as the protection of human beings is concerned it might seem to us to be a matter of little consequence that the bacillus pathogenic to man does not affect the ox, even if this were positively proved for all breeds of cattle and every kind of infection, but conversely it is a more serious thing, and the possibility of it is an undoubted fact, that the cattle bacillus affects man. Moreover, the cattle bacillus affects other domestic animals, and from an economic point of view it is in some localities already an anxious question to what an extent tuberculosis has increased among pigs in consequence of their consuming waste portions of milk. And who will give us a guarantee that the cattle bacillus in passing through the pig does not become a more direct danger to man?

I purposely refrain from saying more virulent. In the transmission of a bacterial poison prepared in a state of purity only its quantity per unit is to be considered, if the poison acts at all; but in estimating the virulence of a living

parasite the whole of the tissue change together with the poison must be taken into account. Thereon depends its adaptation, its attainment of a position, its varying behaviour with respect to the varying nature of its host. It would, therefore, be always possible that one parasite might be more dangerous for one particular kind of host than for another, although it forms a smaller quantity of specific poison, if only it has an increased power of attack. No one can say at present that the bacillus pathogenic to cattle is more poisonous or more virulent, or conversely, than the bacillus which is pathogenic to man or to the pig or to the rabbit. That is only one of the contingencies in which an agreement must be come to as regards the third term of the comparison, for instance, rabbit as the animal used for the experiment, number of germs, and method of imparting the infection. The mere number of germs is not the effective part. Provisionally the only thing that is certain is that the so-called tubercle bacillus adapts itself to the particular member of the animal kingdom which happens to be its host, and that when it has so adapted itself and has, for instance, become pathogenic for man, in that case it is not quite so pathogenic for another kind of host, such as the ox.

But this limit cannot be practically defined and is to be counted so much the more for this reason, that when the bacillus gains access to a susceptible individual of a different genus, as, for instance, when the bacillus pathogenic to cattle gains access to a child, it establishes itself in the child anew and henceforth for other individuals of this genus —i.e., for mankind—there is an increased danger of more widespread infection.

The cattle bacillus certainly affects the human subject. We are in fear that it will be communicated to us from cattle by means of milk containing the tubercle bacillus. The milk is taken as food by the mouth, so that infection produced in that way ought to manifest itself as primary tuberculosis of the abdominal viscera. That is at least the general opinion at present. I consider it to be not altogether correct. Induced by certain observed phenomena, according to which in a primary outbreak of tuberculosis in the region of the upper air-passages there was extreme probability that the infection spread from the mouth (carious teeth, tonsils), Weleminsky experimented by infecting animals in like manner, and he even experimented on himself by drinking milk infected with micrococcus prodigiosus; some time after taking the milk the infective organism could be found in his tonsils. It therefore appears possible that when fluids containing pathogenic organisms are drunk these organisms make their way into the system from the upper passages—as, for instance, from the tonsils—and then the primary focus of the disease is in the region of the air-passages; it is under these circumstances a mistake to suppose that there is an infection of the lung through the respiration. For this reason I have a suspicion that many forms of tuberculosis are at present erroneously ascribed to respiration, whereas they ought to be attributed to infection from food, especially milk.

In a given case it is difficult to prove this post mortem, but it will be sufficient to demonstrate that the cases of primary tuberculosis of the bowel certainly represent only a minimum portion of the cases in which infection has been conveyed by way of the mouth with food. The number of these cases occurring in children is by no means so small as Koch alleged. The number of the cases may be fairly reckoned as between 25 and 35 per cent. of all the deaths of children from tuberculosis. All cases of tabes mesenterica belong to this class, and according to Heller tuberculosis of the mesenteric glands is present in almost a half of all the cases of tuberculosis affecting children. In adults primary tuberculosis of the intestine is rarer, but it has been recognised with certainty even in them. The question, however, is one for public measures to be taken with regard to it. If cattle bacilli establish themselves in even only a few cases they may open the way for a further extension of pathogenic organisms which will now more easily attach themselves to the human subject.

As a general rule tubercle bacilli occur in milk only if tubercle is already present in the udder of the cow; occasionally, of course, some other infection of the milk may be possible in consequence of want of cleanliness on the part of the herdsmen and milkers or from general want of cleanliness in the cow-house. Although tuberculosis of the udder amounts to only 2 or 3 per cent. of the cases of bovine tuberculosis, this danger is not so small if it is borne in mind that the diffusion of tuberculosis among cattle in many districts is very considerable; as a rule it affects from 20 to 30 per cent., but sometimes even more than 50 per cent. of all the cattle. Koch has therefore very greatly understated the danger of tuberculous milk and has not estimated this danger from all the points of view that require to be taken into account.

Where success has attended endeavours that have been made to reduce the mortality from tuberculosis by means of hygienic measures, as in factories, the question has only been one concerning the inhalation tuberculosis of adults. These measures have remained without effect on tuberculosis as it occurs in childhood, and this shows that the sources of the latter will have to be closed in some other way. Koch, however, would have us avoid interference with these sources and would have us concede to dairymen and milk-sellers the right of infecting children with tuberculous milk.

In places where cattle are allowed to graze at liberty, in our Alps and in marshes, uncooked milk will often be drunk with impunity; adults may do this as a rule, they being but little predisposed to intestinal tuberculosis, and even children may do it. But in the low country and in towns where the dairy cattle are always crowded together in damp cow-houses and infection spreads from animal to animal, Koch's assertion that there is no cause for uneasiness would be an invitation to carelessness which would undo all that has been accomplished.

If, as is alleged, there is no danger to human beings, who would have the courage to ask for systematic inoculation of herds of cattle with tuberculin for the purpose of freeing them from tuberculosis? As it does no harm all kinds of meat would soon be sold without more ado, and there must therefore be buyers. Of course, bovine tuberculosis does us no harm! Only æsthetic considerations and not hygienic ones would regulate the sale of the flesh and milk of tuberculous cattle, and the ingenuity of tradesmen would not be at a loss for ways and means to snap their fingers at æsthetics.

We ought to carry on the struggle against bovine tuberculosis unremittingly, both on account of the economic danger and also because bovine tuberculosis forms an immediate danger to mankind. The question is not whether this danger is great or small, whether it has been overestimated formerly or is under-estimated by Koch now, but what has to be considered is that this danger comes upon us in a form which requires the most energetic measures of public hygiene, because the inhabitants of towns, especially the workers in manufacturing towns, are quite unable individually to protect themselves sufficiently against it.

In struggling against tuberculosis we must carefully keep in mind that not only tubercle bacilli but also human beings with their predisposition have to be taken into account. A campaign merely against the bacilli does not practically go far enough, inasmuch as the etiology of tuberculosis does not become comprehensible solely by studying the biology of the bacilli.

But the struggle against the tendency to disease is so rich in excellent promise, and in early life, especially among the children of the working-classes in towns, it offers such satisfactory prospects, that the sanitary authorities of civilised countries will do well to offer it a helping hand in the spirit of positive constructive hygiene for the bringing up of robust generations and for the carrying on of the struggle against tuberculosis assiduously all along the line.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 33 of the largest English towns 6525 births and 4750 deaths were registered during the week ending August 24th. The annual rate of mortality in these towns, which had been 22·4, 22·1, and 21·3 per 1000 in the three preceding weeks, further declined last week to 21·6 per 1000. In London the death-rate was 19·2 per 1000, while it averaged 23·2 in the 32 large provincial towns. The lowest death-rates in these towns were 14·3 in Huddersfield, 14·4 in Bristol, 14·8 in Cardiff, and 16·3 in Croydon; the highest rates were 27·2 in Birkenhead, 27·5 in Salford, 28·5 in Newcastle, 29·1 in Sunderland, and 30·2 in Gateshead. The 4750 deaths in these towns last week included 1639 which were referred to the principal zymotic diseases, against 1725 and 1620 in the two preceding weeks; of these 1356 resulted from diarrhœal diseases, 87 from measles, 61 from "fever"

(principally enteric), 58 from diphtheria, 49 from whooping-cough, and 25 from scarlet fever. The lowest death-rates from these diseases were recorded last week in Bristol, Cardiff, Swansea, and Huddersfield; and the highest rates in Leicester, Manchester, Salford, Hull, Sunderland, and Gateshead. The greatest mortality from measles occurred in West Ham, Birkenhead, and Salford; from scarlet fever in Wolverhampton and Blackburn; from whooping-cough in Swansea; and from diarrhœal diseases in Manchester, Salford, Hull, Sunderland, Gateshead, and Newcastle. The mortality from "fever" showed no marked excess in any of the large towns. The 58 deaths from diphtheria included 27 in London, six in Leicester, four in Salford, and three in Leeds. No fatal case of small-pox was registered last week in any of the 33 large towns. There were 41 small-pox patients under treatment in the Metropolitan Asylums hospitals on Saturday, August 24th, against 13, 11, and 13 on the three preceding Saturdays; 30 new cases were admitted during the week, against four, three, and eight in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 3148 and 3101 at the end of the two preceding weeks, had further declined to 3040 on Saturday last; 273 new cases were admitted during the week, against 391, 306, and 300 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 126 and 103 in the two preceding weeks, rose again last week to 126, but were 27 below the corrected average. The causes of 45, or 1·0 per cent., of the deaths in the 33 towns last week were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Nottingham, Bolton, Bradford, and in 11 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Liverpool, Sheffield, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 19·8, 19·2, and 19·0 per 1000 in the three preceding weeks, further declined to 17·8 per 1000 during the week ending August 24th, and was 3·8 per 1000 less than the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 14·4 in Paisley and 14·5 in Aberdeen to 18·4 in Glasgow and 20·6 in Dundee. The 566 deaths in these towns included 92 from diarrhœa, 12 from measles, nine from "fever," eight from whooping-cough, and three from scarlet fever. In all 124 deaths resulted from these principal zymotic diseases last week, against 174, 168, and 150 in the three preceding weeks. These 124 deaths were equal to an annual rate of 3·9 per 1000, which was 3·6 below the zymotic death-rate during the same period in the 33 large English towns. The fatal cases of diarrhœa, which had been 129 and 111 in the two preceding weeks, further declined last week to 92, of which 45 occurred in Glasgow, 20 in Dundee, 11 in Edinburgh, five in Aberdeen, five in Leith, four in Greenock, and two in Perth. The deaths from measles, which had decreased from 24 to 11 in the five preceding weeks, rose again to 12 last week, and included eight in Glasgow and two in Edinburgh. The deaths referred to different forms of "fever," which had been six and five in the two preceding weeks, increased last week to nine, of which four were registered in Glasgow and two in Edinburgh. The fatal cases of whooping-cough, which had been 28, 12, and 18 in the three preceding weeks, declined again to eight last week, and included six in Glasgow. The three deaths from scarlet fever corresponded with the number recorded in each of the two preceding weeks. The deaths referred to diseases of the respiratory organs in these towns, which had been 44 and 53 in the two preceding weeks, declined last week to 51, and were 31 below the number in the corresponding period of last year. The causes of 21, or nearly 4 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 22·4 and 19·9 per 1000 in the two preceding weeks, rose again to 24·5 per 1000 during the week ending August 24th. During the past four weeks the death-rate has averaged 21·9 per 1000, the rates during the same period being 19·4 in London and 17·7 in Edinburgh. The 176 deaths of persons belonging to Dublin registered during the week under notice were 33 in excess of the number in the preceding week, and included 34 which were referred to the principal zymotic diseases, against numbers increasing from five to 34 in the eight preceding weeks; of these 32 resulted from diarrhœa, one from scarlet fever, and one from whooping cough. These 34 deaths were equal to an annual rate of 4·7 per 1000, the zymotic death-rates during the same period being 4·6 in London and 2·6 in Edinburgh. The fatal cases of diarrhœa, which had been 23, 33, and 30 in the three preceding weeks, rose again last week to 32. The mortality from whooping-cough showed a decline from that registered in the preceding week. The 176 deaths in Dublin last week included 54 of children under one year of age and 40 of persons aged upwards of 60 years; the deaths both of infants and of elderly persons were considerably in excess of the number recorded in the preceding week. Two inquest cases and three deaths from violence were registered; and 53, or nearly one-third, of the deaths occurred in public institutions. The causes of 14, or about 8 per cent., of the deaths in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned qualified candidates for the Naval Medical Service have been appointed to be Surgeons in His Majesty's Fleet:—Thomas Brown Shaw, Percival Thomas Nicholls, Alfred Thomas Gailleton, and George Sandys Davidge.

IMPERIAL YEOMANRY.

Glamorganshire: Richard Michael Moynan to be Surgeon-Lieutenant. Lieutenant-Colonel F. W. Trevor, Royal Army Medical Corps, is granted the local rank of Colonel in South Africa whilst Principal Medical Officer of a Division. Dated 7th April, 1901.

ROYAL ARMY MEDICAL CORPS.

Colonel Richard H. Carew, D.S.O., is placed on retired pay. Dated August 10th, 1901.

The undermentioned Civil Surgeons to be Lieutenants:—James Waddell (dated June 19th, 1901), Patrick George Hyde (dated June 22nd, 1901), Andrew McMunn (dated June 25th, 1901), Alfred W. A. Irwin (dated July 1st, 1901), and George H. Usmar (dated July 5th, 1901).

The undermentioned officers are granted the local rank of Colonel in South Africa whilst Principal Medical Officers of General Hospitals:—Lieutenant-Colonel J. L. Hall (dated May 7th, 1901), Lieutenant-Colonel G. H. Sylvester (dated Feb. 12th, 1901), Lieutenant-Colonel G. E. Twiss (dated Feb. 5th, 1901), and Lieutenant-Colonel F. A. B. Daly (dated Feb. 5th, 1901).

The grant of the local rank of Colonel in South Africa made to the undermentioned officers of the Royal Army Medical Corps is continued to them whilst holding the appointments stated against their names:—Lieutenant-Colonel J. D. Edge, Principal Medical Officer, Johannesburg District and Lines of Communication, Klerksdorp-Sandspruit; Lieutenant-Colonel J. A. Gormley, whilst Principal Medical Officer of a General Hospital; Lieutenant-Colonel J. C. Dorman, whilst Principal Medical Officer, Eastern Line, Transvaal; and Lieutenant-Colonel A. T. Sloggett, C.M.G., whilst Principal Medical Officer of a General Hospital.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Captain S. Clark, having retired from the Volunteers, ceases to belong to the Army Medical Reserve of Officers. Surgeon-Captain C. Graham Grant, 24th Middlesex Volunteer Rifle Corps, to be Surgeon-Major.

INDIAN MEDICAL SERVICE.

The following promotions have been approved by the King:—*Madras Establishment:* To be Colonel: Lieutenant-Colonel Andrew Francis Dobson. Dated May 4th, 1901. *Bombay Establishment:* To be Lieutenant-Colonel: Major Henry Wickham Stevenson. Dated April 2nd, 1901. The King has also approved of the retirement from the service of the undermentioned officers: Colonel Terence Joseph McGann, Madras Establishment (dated May 4th,

1901); Lieutenant-Colonel George Waters, Bombay Establishment (dated April 23rd, 1901); Lieutenant-Colonel Edward Lawrie, Bengal Establishment (dated May 17th, 1901); and Major George Herbert Fink, Bengal Establishment (dated July 13th, 1901).

VOLUNTEER CORPS.

Rifle: 1st Volunteer Battalion the Buffs (East Kent Regiment): Surgeon-Lieutenant H. S. Oliver to be Surgeon-Captain.

VOLUNTEER MEDICAL STAFF CORPS.

The Glasgow Companies:—Surgeon-Captain W. F. Somerville to be Surgeon-Major.

SOUTH AFRICAN WAR NOTES.

The following have been discharged from hospital to duty:—Major S. Hickson, R.A.M.C., and Captain H. W. Vaughan-Williams, R.A.M.C.

Major B. L. Mills, R.A.M.C., and Civil Surgeons Turton, Jones, and Wade are on passage home in the *Wakool*, which left Cape Town on August 21st.

Civil Surgeons Verley, Hunter, and Brock are on passage home in the *Dilwara*, which left Cape Town on August 24th.

Princess Henry of Battenburg invited a number of invalids from South Africa to a short trip in her yacht *Sheila* recently.

AFFAIRS IN SOUTH AFRICA.

Whatever effect Lord Kitchener's proclamation may have had upon the burghers in inducing them to submit to the inevitable and to put an end to further bloodshed and futile suffering on the part of their countrymen it has had none on the Boer leaders and generals who have now little or nothing to lose or to gain by it. As might have been confidently expected, they announce their intention of holding out to the end, although they cannot possibly deceive themselves into believing that they can ever hope to accomplish the design with which they started—namely, that of uniting South Africa under an Afrikander flag. The Boer generals, not without reason, think they can at any rate succeed in eluding capture, and it is apparently hopeless to expect that anything short of that will suffice to put an end to their hostile activity. Be this as it may, the cold season at the Cape will soon be coming to an end and with the advent of hot weather we may expect that there will be a recrudescence of enteric fever and of other diseases among the forces in the field, although probably not to anything like the extent that has taken place in the past. The troops forming the army of occupation, although they may expect to be harassed by fitful attacks and desultory fighting and marches in pursuit of small marauding bodies, will not be generally called upon to undertake the same hard and fatiguing marches or exposed to the same extent to the heat—conditions which had previously rendered them so vulnerable to disease-causes—and they will also have become more acclimatised and hardened by field service. Still, there has been a good deal of enteric fever during the past winter and every effort should be made to provide for the cleanliness and sanitary condition of camps and railway-stations, and for the provision of a good water-supply, together with proper means for the boiling and storage of the water. As we have again and again insisted upon, the soil in and around camps soon becomes fouled by occupation, rendering a frequent change of site essential. The long-continued elimination by the kidneys of typhoid bacilli, their vitality in organically polluted soil, and the facility with which this source of dissemination is overlooked in camps make this obvious. The sanitary work of the army in the field is always of the highest importance, and to be of any use it must be systematically undertaken and thoroughly carried out. Never was a greater mistake made than that of the abolition of the special post of sanitary officer with an army in the field. Instead of one sanitary officer there should really be a properly organised sanitary department composed of administrative and directing officials and of a subordinate executive service, in addition to a local sanitary body at every camp and post where troops are located, and it should be the duty of an officer of the former to visit, to advise, and to inspect the work of the latter periodically at uncertain times, to consult with the local medical and Royal Engineer officers, and to furnish the officer commanding the station with a summary result of his recommendations, sending a copy to the chief of the staff at headquarters, to whom and to the principal medical officer of the army he should be empowered to telegraph in case of need.

DEATHS IN THE SERVICES.

Fleet Surgeon William Brown, R.N. (retired), at Southsea, on August 16th, aged 55 years. He entered the service as Surgeon in 1871, became Staff Surgeon in 1882, Fleet Surgeon in 1890, and retired in 1891. He was at the bombardment of Alexandria (promoted Staff Surgeon), and served during the Egyptian War of 1882 (medal with clasp and Khedive's bronze star).

Correspondence.

"Audi alteram partem."

THE CELEBRATION OF ST. LUKE'S DAY.

To the Editors of THE LANCET.

SIRS,—On or about St. Luke's Day the members of the Guild of St. Luke hold their annual meeting and have an anniversary service at St. Paul's Cathedral. I beg to suggest that a similar service be held in every town in the kingdom on that day or the following Sunday and that a collection be taken at each, of which one-fifth be given to the British Medical Benevolent Fund, one-fifth to the Royal Medical Benevolent College, Epsom, one-fifth to the Society for the Relief of Widows and Orphans of Medical Men, one-fifth to THE LANCET Relief Fund, and one-fifth to Church expenses; these most deserving charities would benefit greatly by these collections. St. Luke's Day, Oct. 18th, will this year fall on a Friday.

I am, Sirs, yours faithfully,

Bedford, August 26th, 1901. HORACE E. HAYNES.

"WAS LUIGI CORNARO RIGHT?"

To the Editors of THE LANCET.

SIRS,—I do not find that Mr. T. B. Sellors, in THE LANCET of August 24th, p. 565, advances any cogent argument against my views regarding the evils of pap-feeding.[1] His argument founded on the relative frequency of adenoids in the poor and well-to-do is valueless, as we have no exact data to go upon. Mr. Sellors says, "It is recognised that the disease more generally affects the children of the poor." But is it? Adenoids are certainly painfully common in the well-to-do.

Mr. Sellors writes: "It must be apparent to those who have had much to do with babies that it is wrong to attribute the presence of adenoids to an imperfect use of the jaws." Well, Sirs, to me it is by no means apparent. He goes on to say: "During the first year of life the jaws and tongue are in almost perpetual movement; when not taking the breast or bottle the child sucks its fingers or 'comforter,' or champs so vigorously that its bib is quickly saturated with saliva." I would remind Mr. Sellors that my indictment against the too exclusive feeding of children on pap did not specifically refer to the "first year of life," but to the period between weaning and the end of the second year, though, as a matter of fact, I am prepared to extend this period in both directions. Is it not apparent to Mr. Sellors that we have conclusive evidence as to the inadequate use of the jaws during early life in the fact of their defective growth and the consequent overcrowding of the teeth to which that defective growth so frequently leads?

Mr. Sellors has a tender solicitude for the baby's gums; he fears lest they may be torn by hard food. Has this physician, in his long experience of babies, ever chanced to put his fingers into the mouth of a lusty baby at its weaning time? If not, a valuable object lesson in infantile dietetics awaits him: he will find the interior of the baby's mandibular apparatus better adapted for lacerating than being lacerated.

But, Sirs, what is the use of arguing as to the practicability of giving the weaned baby food that requires substantial chewing when the question can only be decided by experience? My experience has shown me that the theory is practicable. Acting on the assumption that the teeth of the young human are not for ornament merely, but for use, I have long recommended mothers to give their children's teeth an opportunity of exercising their function, which is to bite and chew food. The result has been eminently satisfactory. I believe, indeed—though I do not at present press this point—that children should be afforded

[1] THE LANCET, August 17th, 1901, p. 467.

an occasional opportunity of biting hard foods before the weaning time—directly, in fact, the teeth begin to appear. What is the meaning of the champing and profuse salivation to which Mr. Sellors refers—phenomena which attend the eruption of the teeth and the awakening into functional activity of the salivary glands? May we not regard them as the play of a normal function craving for satisfaction—as, in fact, the ineffectual chewing and insalivation of phantom morsels of food? And how is this mute but eloquent appeal met? By confining the diet to liquids and pap which slip down before the mouth has had an opportunity of exercising its newly acquired functions.

Mr. Sellors complains that I have not given any explicit directions as to the kinds of food I would give to the child. The reason is simple. I could not within the narrow limits of a letter deal with the subject in more than a general way. I hope, however, on an early occasion to enter into particulars, and to bring forward evidence which I believe will convince the most sceptical that the modern system of feeding the young human on liquid and pap, while denying him a fair proportion of food that needs abundant mastication, interferes with the proper development of the jaws and their appendages, and of the accessory cavities (the pharynx, nasopharynx, and nasal passages) and their appendages; that it is an abundant source of indigestion; that it has much to do with the causation of adenoids; and that it is largely responsible for the ever-increasing prevalence of dental caries and other affections of the teeth. When we reflect upon the many evils which follow in the wake of these diseases—deafness, semi-idiocy, pulmonary disorders, to mention only a few—it must be admitted that my indictment against the system of pap feeding is a serious one. And such I intend it to be. I am, Sirs, yours faithfully,

Wimpole-street, W., August 25th, 1901. HARRY CAMPBELL.

"HARVEST BUGS."

To the Editors of THE LANCET.

SIRS,—In his interesting letter on the above parasites in THE LANCET of August 24th, p. 562, Mr. A. Maude states that he can find no reference to them in any text-book of medicine or dermatology. If he will turn to p. 864 of Dr. H. Radcliffe Crocker's "Diseases of the Skin" (second edition, 1893) he will there find a short account of the parasite and of its effects on the skin. It is indexed under "harvest bug." M. Mégnin, whose researches are well known, calls it in "Les Acariens Parasites" "*le Trombidion soyeux*." Dr. Crocker also refers to the two American species of harvest ticks described by Professor Ritz of St. Louis. I have seen severe pustular and crusted lesions about the legs in two cases, both young women, who had received the attentions of the harvest bug.—I am, Sirs, yours faithfully,

Upper Gloucester-place, N.W., August 27th. GEORGE PERNET.

THE USE OF A LINEN BAG IN ETHER ANÆSTHESIA.

To the Editors of THE LANCET.

SIRS,—The apparatus invented by Clover and variously modified since for the administration of ether is such an admirable one that I do not know that we need ask for a better as a medium for ether-giving save in one particular and that a most important one—viz., the rubber bag. Although obviously possessed of some objectionable features the rubber bag has been accepted as part and parcel of the necessity of things and remains as an unclean but indispensable despot in the administration of ether in this country. Without doubt the open method of giving ether on a mask or cone is too slow in its effect to be of real practical use, and it is this slowness which has necessitated the use of the bag in question. The argument is that to produce and to maintain ether anæsthesia you must have the asphyxial element present; to this end you must exclude air and thus the rubber bag. I believe this to be a wrong and mistaken conclusion, as I shall afterwards show. The objections I would make to the rubber bag are—first, that it is apt to produce more of the asphyxial element than is desirable—viz., cyanosis; and, secondly, that it is unclean.

As regards the first, considering that the *raison d'être* of the rubber bag is to introduce the asphyxial element, it is not quite fair to charge it with producing a lividity which is so far intended, but it often does more; even in the best of hands it occasionally produces cyanosis to a degree that cannot be otherwise than a strain on the right ventricle, and certainly begets a frothy condition which is undesirable even if it does not lead to further trouble. If it were possible to remove this reproach of cyanosis and its consequent troubles from ether anæsthesia nearly all the objections to it would be groundless, and this can be done by using instead of the rubber bag one made of linen which I have devised and describe below. The second objection, that of uncleanliness, has doubtless presented itself to every anæsthetist who ever thought of the condition of his rubber bag and yet I know of no way of avoiding it. It is no mere sentimental objection that the last patient who breathed into the bag was the subject of intestinal obstruction and had a foul fæcal odour in his breath or was a sufferer from carcinoma of the œsophagus or tonsils. For the last two or three years I have been in the habit of meeting these objections by rinsing out the bag well with water, some antiseptic occasionally being added, after each operation, thus ensuring as much cleanliness as possible, and so far as the avoiding of cyanosis is concerned I have dispensed with the bag when I could, allowing the patient to breathe through the open inhaler, resorting only to it when this proved insufficient. On the whole these means met the case fairly well, but while modifying the objections they did not entirely remove them.

In America where ether is the anæsthetic mostly in use a towel folded cone-shape and covered or not by a thin waterproof is employed and apparently does well, although it finds little favour in this country. Mr. Mayo Robson who was recently in the United States came back much impressed with this mode of administration and urged me to try it. It did not, however, appeal to me; it seemed lacking in precision after having been used to measuring the ether given through a Clover apparatus. It occurred to me, however, to substitute a linen bag for the rubber one and this has proved itself to be so well adapted for the purpose and so completely meets the objections to the ordinary rubber bag that I should like to call the attention of the profession to it. I have tried it now in a sufficient number and variety of cases to enable me to pronounce it a success. The bag is made of a fine linen known as "holland" and is shaped somewhat like the ordinary bag. The body of the bag I have had made of three pieces accurately sewn together, a collar of the same material with a tape attached to be slipped over the ordinary Clover bag-mount and tied there completes it. As may be guessed this bag does not fill and empty, as does the rubber one, to the breathing of the patient, it is simply put on in a "bunched out" condition and only a slight rise and fall tells of the expiration and inspiration. My experience with it is that the patient goes under very quietly, I may say with almost suspicious quietness; there is none of the usual noisy breathing, almost no salivation, and absolutely no lividity. Abdominal heaving is also absent, the anæsthesia is as quiet as with chloroform. The time occupied to produce anæsthesia is, of course, longer than with the rubber bag, varying from seven to 12 minutes. The corneal reflex seems to be lost disproportionately soon. The amount of ether consumed is also considerably more, during the first 15 minutes about twice as much being used, but in a prolonged anæsthesia the disproportion is not so great, as will been seen in a note of the appended cases. There is another very great advantage in the use of the linen bag in that the anæsthetist holds a trump card, so to speak, in the shape of his chloroform drop-bottle. Should the patient prove hard to anæsthetise or threaten to come round he can sprinkle a little chloroform on the bag, selecting by preference the place where the linen shows the most marked rise and fall of the breathing. A fresh bag or freshly-washed bag is used for each case; it can be slipped on to the ordinary Clover mount and tied in position in half a minute. In practice I turn the Clover gradually, but compared to the old mode rapidly, on to full and keep it there or thereabout till sufficient anæsthesia is produced. Later a less concentrated vapour will be found enough. Perhaps one is usually inclined to over-value one's own discovery, but in this case I do not think that I make too much of it in saying that it ought to supersede the rubber bag completely. A fresh, clean, aseptic bag for each patient is a thing to be desired when it can be had at the cost of washing. The entire absence of even lividity will commend it to every anæsthetist and the possible resort to chloroform in addition,

without change, is a happy incident. I may say that the bag has been used by several other men here with the same good results. The bags can be had from Messrs. Reynolds and Branson and Mr. R. Rauschke of this city. I might add that for further asepsis the Clover chamber can be boiled or immersed previously to operation in a 1 in 20 hot carbolic solution. The mask I am having made of thin brass, nickelled, with a detachable red rubber face-pad so that the whole can be rendered as sterile as the operator's instruments.

Note of Cases.

Date.	Operation.	Amount of ether.	Time of administration.	Average time per ounce.
July 1st.	Choledochotomy, &c.	11 oz.	1 hr. 40 min.	1 oz. in 9 min.
,, 2nd.	Nephrectomy.	5 ,,	1 ,, 45 ,,	1 ,, ,, 9 ,,
,, 2nd.	Appendectomy.	4 ,,	1 ,, 40 ,,	1 ,, ,, 10 ,,
,, 3rd.	Ovariotomy.	7 ,,	1 ,, 48 ,,	1 ,, ,, 7 ,,
,, 6th.	Gastro-enterostomy.	4 ,,	1 ,, 40 ,,	1 ,, ,, 10 ,,
,, 10th.	Exploratory and colotomy.	4 ,,	1 ,, 35 ,,	1 ,, ,, 8 ,,
,, 10th.	Breast amputation	4 ,,	1 ,, 45 ,,	1 ,, ,, 11 ,,

In all, I have had some 50 cases similar to the above; average time to procure anæsthesia being 10 minutes; average amount of ether being one ounce per eight minutes.

I am, Sirs, yours faithfully,
W. MCGREGOR YOUNG, M.A., M.D. Glasg.

Leeds, August 27th, 1901.

"THE TREATMENT OF PHTHISIS BY MEANS OF ELECTRICAL CURRENTS OF HIGH FREQUENCY AND POTENTIAL."

To the Editors of THE LANCET.

SIRS,—In your excellent report of my paper on the above subject, which I read before the Medicine Section of the British Medical Association at Cheltenham, I am reported to have said: "He did not think the bacilli were killed by the current." The bacilli are not killed but are stimulated to very excessive overgrowth which affects them adversely by attenuation. The bacilli act in the following manner. Within a few days they begin to increase and after a week or two become greatly increased in numbers; they soon form clumps and later get misshapen, short and stumpy, and generally curved, and stain far more readily than before. After a time they decrease, and later, when the patient is obviously better in every respect, they may cease entirely, but a few may reappear from time to time. At a stage of the treatment large numbers of leucocytes, &c., are generally found. The temperature naturally follows the increase in numbers of the attenuated bacilli and increase in body weight follows the decrease of bacilli.

I am, Sirs, yours faithfully,
CHISHOLM WILLIAMS.

Bedford-square, W.C., August 24th, 1901.

MASSAGE IN JOINT INJURIES.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Feb. 2nd, 1898, p. 465, I explained and advocated a treatment for certain recent injuries of joints by massage and movement. I have now the pleasure of noting that some of the more prominent members of the medical profession have adopted and are endorsing the views which I then put forward—views which I had not seen had been previously advocated. Last year Mr. (now Sir William H.) Bennett spoke favourably of the treatment and this month at the meeting of the British Medical Association held at Cheltenham Mr. Howard Marsh has been giving it his general approval, so that we may fairly anticipate that it will come, with more or less modification, to be generally adopted by the profession. Mr. Marsh says, "The after-treatment of dislocations has of late years undergone a great and very advantageous change. In the case, e.g., of the shoulder-joint the arm is no longer bandaged to the side for a fortnight or three weeks, but passive movements and massage are regularly used after the second or third day." This is a line of treatment which very nearly corresponds with the principle I advocated nearly three and a half years ago. I hold that a welcome result of the adoption of this line of treatment will be a great lessening of the bone-setting industry, the annoyance of which to the profession is well known and whose operations have often been attended with a certain measure of success, in my opinion chiefly owing to the former faulty treatment of these injuries.

One of the most interesting and successful cases which I have treated on the above principles was the case of a volunteer who dislocated his right elbow. His forearm was at right angles to its proper position and the bones of the forearm were so much displaced that there was great danger of the skin rupturing. The ligaments must have been very much injured. Although there was a good deal of inflammation and swelling afterwards I persevered in the treatment, so that within a comparatively short time he was at work, and now his joint is as good as it ever was.

I am, Sirs, yours faithfully,
Galashiels, August 26th, 1901. WILLIAM DOIG, M.D. Edin.

THE TEMPERATURE OF INGESTA AND ITS INFLUENCE.

To the Editors of THE LANCET.

SIRS,—I have never met with any observations on the temperature of food and drink as taken into the body under ordinary circumstances. It may be of some interest to call attention to the matter now that the hot weather is upon us and one's efforts are directed towards keeping cool. Temperatures which cannot be borne by the external skin are easily tolerated by the mucous membrane of the alimentary tract to an extent which may surprise many. For example, taking an ordinary typical meal, I found that the following temperatures were registered (Fahrenheit): meat, 115°; beans, 132°; potatoes, 150°; and fruit pie, 130°. Any of these were well borne by the mouth, even the potatoes. I found that the average temperature of hot tea was 135°, above this the tea could be sipped up to 142° but could not be drunk with comfort. It was impossible to keep the finger in contact with any of these articles for more than a moment. These few figures will suffice to emphasise the lesson which I wish to draw, that if we want to keep cool hot meals should be avoided. They also help one to realise that the stomach may be seriously affected by taking our food at such high temperature, as witness the frequency of gastric ulcer in cooks supposed by many to be due to the tasting of hot dishes.

I am, Sirs, yours faithfully,
JAMES ROOTH, M.R.C.S., L.R.C.P.

Oxford, August 25th, 1901.

"HAY FEVER: ITS REMEDY."

To the Editors of THE LANCET.

SIRS,—In answer to Mr. Lennox Browne's suggestion in THE LANCET of August 24th, p. 565, of tabloids of suprarenal extract for use in hay fever, I may say that I gave them a fair trial about 18 months ago but ceased using them owing to the great difficulty in dissolving them in water. I have for the past 12 months used the mixture of chloretone and suprarenal, a preparation which I find does not decompose for a long time; if the mixture is diluted more chloretone should be added to insure preservation. Dr. Clement Dukes does not state what class of cases of hay fever are benefited by the use of adrenalin chloride; my experience teaches me that only those cases with some intra-nasal abnormality—e.g., hypertrophic rhinitis, spurs, &c.—are improved by the use of extract of suprarenal capsule and a large majority of these patients can be permanently relieved by suitable intra-nasal treatment.

I am, Sirs, yours faithfully,
Lincoln. A. STANLEY GREEN, M.B., B.S. Lond.

RE "BLUE URINE."

To the Editors of THE LANCET.

SIRS,—I have just learned that the cause of "blue urine" in a case reported in THE LANCET of June 1st, 1901, p. 1535,

was due, after all, to a pill of methylene blue given my patient for the pains in his back by a friend who takes them "for his kidneys." My patient had not the least recollection of the incident and was much alarmed at the consequence Hence his persistence in awaiting my return from visiting. My patient's statements were quite *bonâ fide* and I consider my diagnosis, though erratic, quite justifiable.

I am, Sirs, yours faithfully,

Stockport, August 23rd, 1901. JOHN GOOD.

"THE TIMES ARE TROUBLOUS."

To the Editors of THE LANCET.

SIRS,—Under the above heading "G. P." in THE LANCET of July 27th, p. 229, mildly describes the lessening income of the profession. I think his letter is admirable on all points but that of describing how hospitals diminish our incomes in manufacturing districts which he has omitted. England's population, I may say, is a working-class one and it is with working people we have largely to deal and all look to the cheapest and easiest way to procure medical aid; hence employers of labour find that the cheapest and readiest means of cheapening the employer's liability is to subscribe to the local hospital if there is one, and if not, to found one, so in that way their pockets do not suffer by the Act. Again, the working man objects to approach the medical man's well-painted hall-door, and in preference to bringing his minor ailment there he finds a shilling lotion or a bottle of physic from the chemist does all he requires. Minor ailments the chemist prescribes for and thrives on, hence he lives; and the medical man who paid for his profession becomes a squire at the expense of his wife's fortune or industry. Quite satisfied with this state of affairs the medical man of to-day has little thought for his poorer brethren whom apparently he detests and will persecute, whereas the chemist who is his enemy oftentimes he befriends and publicly approves of his prescribing qualities rather than help his brother who loves and lives by his profession.—I am, Sirs, yours faithfully,

August 21st, 1901. COLCHESTER SHILLING.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Continued Rise in the Plague Mortality.—Enormous Expenditure on Famine Relief Works.—Medical Officers remaining in China.—"Sutti."—The Report of Plague in Calcutta.

THE plague mortality for India continues to rise. For the week ending August 3rd 2003 deaths were reported compared with 1912 for the previous seven days. In the corresponding week last year the deaths were only 259. The Bombay Presidency is the chief sufferer and returns 1730 deaths with in addition 136 deaths for Bombay city. There has been a gradual increase in this city for some weeks past. The Mysore State (especially Mysore city) has been also severely attacked and reported 109 deaths for the past week. Dropping cases continue in Karachi, and the general mortality in Poona is ominously rising, although up to the present only a few cases have been discovered. Calcutta continues to return between 10 and 20 cases each week, but the general mortality has been exceptionally low for more than a month.

The magnitude of the relief works undertaken during the late famine is shown in the expenditure on relief works controlled by the Public Works Department, which amounted to Rs. 22,297,856 (equal to nearly a million and a half sterling). Of this amount 97 lakhs were incurred in Bombay, 91 lakhs in the Central Provinces, 21 lakhs in the Punjab, and 12 lakhs in Rajputana. There were 29 lakhs spent on irrigation works and nearly 131 lakhs spent on "communications," 29 lakhs on railway construction, and 55 lakhs on "miscellaneous public improvements."

The following is a list of the medical officers remaining in China with the winter garrison. Principal medical officer: Colonel O'Connor, I.M.S. No. 15 British Field Hospital: Captain Browning, R.A.M.C., Captain Hayes, R.A.M.C., Captain Mitchell, R.A.M.C., and Captain J. E. Brogden, R.A.M.C. No. 3 Native General Field Hospital: Lieutenant-Colonel J. A. Burton, Captain F. D. Browne, Lieutenant V. H. Roberts, Lieutenant D. N. Anderson, and Lieutenant A. E. Walter. No. 51 Native Field Hospital: Major Moore, Captain Sargent, Captain Hunt, and Lieutenant G. C. Beamish. No. 57 Native Field Hospital: Major W. White, Major J. T. Ozzard, Captain H. R. Cleveland, and Lieutenant G. R. Stewart. No. 63 Native Field Hospital: Major H. Greany, Major Ricketts, Captain H. Wall, and Lieutenant W. E. McKechnie. Base Medical Store Depôt: Major J. T. Daly. 14th Sikhs: Captain E. H. Sharman. Hong-Kong Regiment: Lieutenant McGaw. 1st Batt. 4th Gurkhas: Captain Lindesey. 6th Burma Battalion: Captain R. G. Turner. 2nd Rajputs: Captain C. Hudson. 30th Bombay Infantry: Captain G. McPherson. On special service: Major C. C. Manifold. All the above, with the exception of the British field hospital, belong to the Indian Medical Service.

The census returns show that the European population within the limits of the Calcutta municipality was 8152, of of whom 2203 were females. There are 1098 more in Howrah and some 250 more in the suburbs. These figures are exclusive of British soldiers who numbered 1450.

The practice of "sutti," or the burning of a widow on the general pyre of her husband, having been made a crime for over 70 years by the Indian Penal Code, is now seldom heard of. A recent case, in which the act of suicide by the widow was aided and abetted by caste-fellows of the widow, shows that the desire to revive this terrible practice is not yet extinct. The husband had died from plague.

The report on plague in Calcutta during the past year has been supplied to the press. The outbreak this year seems to have coincided in season and duration with that of last year, and the mortality has been very similar. There were 7016 deaths and the case-mortality was 90·5 per cent. This is much the same as before and indicates that a large number of living cases fail to come to the notice of the authorities. Subsidiary reports by the district plague officers form a special feature of this issue. There is, perhaps, nothing new recorded, yet the information collected is interesting. The course of the outbreak is clearly recorded by charts, and although the report is much shorter than that of last year it is condensed by the avoidance of repetition. One fault, however, lies in the selection of arbitrary dates for the commencement and ending of the recent outbreak, so that it is with difficulty figures for corresponding periods in previous years can be compared. The evidence as to the value of disinfection is very meagre and it would almost seem that the disinfection as practised had been a failure. It is also certainly unfortunate that only 107 persons were inoculated during the entire outbreak.

Calcutta, August 5th.

THE WAR IN SOUTH AFRICA.

(BY A SPECIAL CORRESPONDENT.)

THE Imperial Yeomanry Hospital has during the past month been very full and it has sometimes been difficult to find room for the different convoys as they arrived, and to do this beds vacated in the morning have been filled in the afternoon. The majority of the cases are of slight ailments. Enteric fever is dying down again after the winter months, and although fresh cases are continually cropping up they are comparatively few in aggregate numbers.

On July 31st Surgeon-General Wilson, A.M.S., inspected the Imperial Yeomanry Hospital and expressed himself as delighted with the arrangements of the hospital. Together with Lieutenant-Colonel Kilkelly, R.A.M.C. (Grenadier Guards), and Dr. H. D. Rolleston and the members of the medical and surgical staff he visited the different sections of the camp. Whilst passing through the enteric fever division he came across an officer who some months before had passed through a previous attack at Deelfontein and he remarked that he had seen several patients who had had two or three attacks of enteric fever, in some cases ending fatally. He went on to say that this was a very strong argument against any system of preventive inoculation ever being of any service.

Passing on to the medical section, giving a kindly word of encouragement to the different patients as he passed, he arrived at the ward set apart for dysentery cases, where Dr.

G. E. Richmond, by the kind permission of Lieutenant-Colonel Kilkelly and Dr. Rolleston, had been enabled to test the efficacy of the new treatment of this terrible complaint by sulphur. Several patients were pointed out to him who had been admitted passing from 20 to 30 motions a day consisting of nothing but blood and mucus, who had been practically cured in two or three days by the administration of 20 grains of sulphur combined with five grains of Dover's powder. The fact that after treatment with sulphur relapses and chronic diarrhœa were less likely to occur was considered to be a valuable factor in favour of the new treatment. Several cases of chronic diarrhœa following dysentery were shown which had greatly benefited by a course of sulphur.

After visiting the general offices, kitchens, x-ray room, surgical divisions, and sanatorium for the reception of phthisical patients, Surgeon-General Wilson expressed his entire approval with the arrangements and hoped that he would be able to keep on the hospital as a Royal Army Medical Corps Hospital when the Imperial Yeomanry Committee gave it up. There are rumours that the Imperial Yeomanry Hospital at Pretoria is to close on Sept. 30th, and that the hospital at Elandsfontein, which is now being enlarged to 100 beds, will carry on the work of the Imperial Yeomanry Hospital in South Africa until the war is at last finished.

Eastwood, Arcadia, August 2nd.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Guardians and Vaccination Prosecutions.

AT a meeting of the Burnley Board of Guardians held on August 21st a resolution was passed by 21 votes to nine, four members not voting, directing the vaccination officer "to abstain from prosecutions until the guardians authorise him specially to do so." It is possible, perhaps, to see what the mover of the resolution meant to say in spite of the confusion as to grammar under which he was suffering, for he said "the vaccination committee instructed their officer last June not to take any further proceedings, and yet he had recently summoned a number of parents in defiance of those instructions." Mr. Jenner Fust, who was present, pointed out that the resolution would be without any power and would leave the vaccination officer in exactly the same position as before, and read an extract of a circular of the Local Government Board which stated that "having regard to the decision of Mr. Justice Wright in the leading case on the subject, and the opinion given by the law officers of the Crown, the duty of instituting and conducting proceedings was imposed on the vaccination officer," under the Vaccination Acts passed before the Act of 1898. He also explained to the guardians that it was the duty of the vaccination officer to take proceedings without any order from them, but that it was their duty "to see that he did so, and if he did not to report it to the Local Government Board." In spite, however, of the opinion of Mr. Justice Wright and the law officers of the Crown and of the clear exposition of Mr. Jennèr Fust these sapient but ungrammatical guardians passed the resolution from which the essential part has been quoted. In order to stultify themselves still further a second resolution was passed "requiring the vaccination officer to request leave of the magistrates to withdraw the summonses against six parents which have already been before the court and adjourned." The serious part of the matter is the open defiance of the law by the Burnley Board of Guardians and the unpleasant position of the vaccination officer who is thus incited and, indeed, required, by his board to break the law.

The Water-supply of Manchester.

The continuation of dry weather keeps the water-supply of Manchester too low to be quite satisfactory and it is still thought advisable to stop the supply at night. There is no doubt plenty of water in Thirlmere, but only one pipe is available and it will be some time before more can be obtained from that source. The old reservoirs at Woodhead have therefore as yet lost none of their importance. It was stated the other day that altogether there was only enough water for 36 days. The weather seems now to be breaking and there promises to be abundance of rain, so that it seems unlikely that the present restrictions will have to be increased. The dry weather has affected the milk-supply, and the other day a man who was fined 40s. and costs at the City Police Court pleaded that he was losing customers from inability to supply them and that the water added to the milk "was not put in for fraud, it was only to prevent ruination." The scarcity of water has led to a second appeal from the chairman of the Bury and District Joint Water Board for the exercise of caution in its use. It is stated that the ground is so dry that recent rains have not reached the reservoirs. A wide area is affected, including Bury, Radcliffe, Whitefield, Haslingden, and Rawtenstall. In the last named 120 houses on one estate supplied from a local reservoir which is now completely dry are, it is said, "completely without water."

Mid-Cheshire Isolation Hospital.

Mid-Cheshire has long been dallying with the question of providing an isolation hospital for infectious diseases and has succeeded almost as well as a Chinese or Turkish diplomatist could have done in postponing the establishment of one for several years. Last November, however, the Cheshire County Council made an order that the Northwich Rural Council and the Northwich, Winsford, and Middlewich Urban Councils should be formed into a joint hospital district and should erect a hospital. This was to have come into force last January but nothing has been done. On August 22nd a communication was received by the clerks of the various councils confirming the order made by the Cheshire County Council, producing, it is said, something like consternation in Mid-Cheshire. The order comes into force on Sept. 1st and will necessitate the expenditure of £15,000, or, as some say, £20,000. Should a hospital satisfactory to the county council not be erected within a year the present hospital committee of 14 will be replaced by one of 18 members, 10 to be elected by the county council and eight by the four local councils interested. The committee thus constituted would no doubt be strong enough to overcome the hitherto successful *vis inertiæ*.

Anthrax in Cheshire.

An outbreak of anthrax has occurred at a farm in Cheshire where 100 cows are kept and from which large quantities of milk are sent to Manchester. Three cows and a pony are stated to have died from the disease. Every precaution as to isolation has been taken "and American food-stuffs are being analysed." So far the cause of the outbreak has not been discovered.

August 27th.

WALES AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Diphtheria in Bristol in 1900.

IN his recently issued annual report to the council of the city of Bristol the medical officer of health, Dr. D. S. Davies, deals at some length with the outbreak of diphtheria which prevailed in Bristol during 1900. There were notified during the year 512 cases, and 103 terminated fatally, the case-mortality being 21 per cent. and the death-rate 0·3 per 1000 of the total population. In the whole of England and Wales the death-rate during 1900 from diphtheria was 0·29 per 1000. In addition to the 512 notified cases material from 318 other suspicious cases were examined with negative results. The economic value of this bacteriological examination is thus very markedly demonstrated, for without such examination the city authorities would have been put to the expense of keeping these 318 cases under observation, carrying out disinfection, and possibly removing a certain proportion to hospital. Mr. J. C. Heaven first drew prominent attention[1] to the persistent presence of the Klebs-Löffler bacilli in the nasal cavities and Dr. Davies in endorsing this view considers that the bacilli may exist, and often do exist, in almost pure growth in the nasal cavities of school-children who have been exposed to the infection without affecting the throat and without producing any constitutional symptoms or any obvious signs of illness, but capable of spreading the disease to other susceptible persons. Dr. Davies deplores the lack of isolation accommodation in the city and considers that

[1] Public Health, vol. viii., p. 211.

if it had been possible to secure isolation at an earlier period of the outbreak many lives might have been saved. Anti-toxin was supplied gratuitously by the corporation to those persons unable to pay for it. Only 70 of the 512 cases were removed to the Ham Green Fever Hospital, and of these 12, or 17 per cent., terminated fatally.

The New Dietary at Cardiff Workhouse.

At the meeting of the Cardiff Board of Guardians held on August 24th the master of the workhouse reported upon the cost of the new dietary and stated that, based upon the experience of the three months during which the dietary had been in operation the additional cost of its adoption would amount to £145 per annum. He further said that there was a much more varied diet, almost a free table so far as the supply of bread was concerned, scarcely any waste of bread, no complaints from the inmates, but some extra work for the officials. At Bristol the estimated saving amounts to over £500 yearly.[1]

Death of Mr. John Griffith Lock.

By the death of Mr. J. G. Lock, M.A. Cantab., L.R.C.P. Edin., M.R.C.S. Eng., L.S.A., J.P., at Tenby on August 18th the medical profession is South Wales loses one of its most prominent members. For two years he had borne with patient courage an illness resulting from malignant disease of the tongue and which he himself was well aware could terminate only fatally. Mr. Lock was born in the year 1840 in Tenby where his father acted for many years as town clerk. He was educated at Harrow and at Trinity College, Cambridge, taking his degree as Master of Arts in 1866. He received his medical education at Addenbrooke's Hospital and at St. Bartholomew's Hospital where he was resident obstetric officer in 1867 and house physician in 1868. In the latter year he began to practise in Tenby and in 1873 was appointed by the corporation as the first medical officer of health to the borough, a position which he resigned early in the present year. To him is no doubt due in a great measure the admirable system of drainage and the plentiful supply of water which have been provided for Tenby. The Tenby Cottage Hospital was established in the year 1871 almost entirely through Mr. Lock's instrumentality and he always took the greatest interest in the welfare of the institution. He had an extensive practice among the residents and visitors of Tenby and of the surrounding district, and was one of the poor-law medical officers for the Pembroke Board of Guardians. Mr. Lock was an ex-president of the Monmouthshire and South Wales Branch of the British Medical Association, and a justice of the peace for the county of Pembroke. In 1882 he was W.M. of the Tenby Lodge of Freemasons, and also held office in the Five Arches Lodge of Mark Master Masons and as P.P.G.R. of the Province of the Western Division of South Wales. Many of his colleagues who have from time to time visited Tenby have reason to remember with gratitude the manner in which Mr. Lock looked after their welfare during their sojourn in the town. He had a charming personality and a most unselfish thoughtfulness for the comfort of others. He was twice married, and his second wife survives him. The funeral, which took place on August 20th, was of a public character and is said to be the largest ever witnessed in Tenby.

August 26th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Sanitary Association of Scotland.

THE twenty-seventh annual congress of the Sanitary Association of Scotland is to be held at Paisley on Sept. 5th, 6th, and 7th. The President will be Dr. R. Farquharson, M.P., of Finzean, and Professor John Glaister (Glasgow) and Mr. K. Cameron, chief sanitary inspector, Aberdeen, will be vice-presidents. The presidential address will deal with the subject of Domestic and Official Sanitation. Professor M. Hay, M.D. Edin., medical officer of health of Aberdeen, was to have opened a discussion on the Value of Hospital Isolation in the Case of Scarlet Fever, but he will be prevented from attending. The annual dinner will be held in the Grosvenor Restaurant, Glasgow International Exhibition, on Sept. 5th.

Aberdeen Medical Practitioners and the Drug Trade.

Those medical men in Aberdeen who have drug shops in addition to their professional business are, it is understood, to take no notice of the deprecation of such practices published in THE LANCET by the senatus of Aberdeen University. With the absence of epidemics trade in all drug shops in the city is at present very dull.

Common Lodging-houses in Aberdeen.

Aberdeen Town Council has resolved to apply to the Local Government Board for Scotland for authority to raise the minimum charge from 4*d.* to 6*d.* per night, so as to include more premises in the category of "common lodging-houses" as defined in the Scotch Public Health Act. This new departure may lead to some increase of business at the corporation lodging-house—which, in fact, is financially a white elephant—but has been anticipated by several individual proprietors of lodging-houses for the nomade or poor class having previously raised their charges to 7*d.* per night.

The British Association at Glasgow.

The arrangements for the meeting of the British Association which will commence at Glasgow on Sept. 11th are now in a forward condition. The university authorities have placed all the buildings at Gilmorehill at the disposal of the Association and there will in this way be provided ample accommodation for the various sections as well as for those charged with organising and executive duties. The municipality have taken an active share in the necessary arrangements and many of the distinguished scientific visitors will be entertained by private citizens. The new President, Professor A. W. Rücker, will deliver his address on the evening of the 11th and this, of course, will be the first official meeting of the Association. On the afternoon of the 12th Professor and Mrs. Cleland will give an "At home" on the occasion of the opening of the new anatomical class-room, laboratory, and museum at the university and in the evening the Lord Provost will officially receive the members of the Association at a conversazione to be given in the municipal buildings. Among the social functions of the meeting there will also be garden-parties by Lord Blythswood at the Botanic Garden, and by Lord Overtoun at his country seat at Overtoun. The attractions of the exhibition, which can now count upwards of 6,000,000 of visitors, will doubtless also receive some share of attention, more especially as the authorities propose to hold a conversazione in the new art galleries which are included within the exhibition grounds. As already stated, the sections are to meet at the University, but the President's address and the public lectures will be given in St. Andrew's Hall. The lectures already announced include one by Professor William Ramsay, F.R.S., on "Inert Constituents of the Atmosphere," and one by Mr. Francis Darwin, F.R.S. on "The Movements of Plants." Professor Mackinder of the Oxford School of Geography will give a special lecture to working men. The excursions are to be numerous, and several of them are to have a definite scientific object; the geological section, indeed, has organised a tour which is to extend over a week and is to include a visit to the famous geological formation at Assynt. Handbooks dealing with the scientific, industrial, and other features of Glasgow and the valley of the Clyde have been prepared and will be placed in the hands of members. All the omens suggest a highly successful meeting.

Report on Scottish Local Government.

The sixth annual report of the Local Government Board of Scotland contains a reference to the late outbreak of plague in Glasgow. Attention is drawn to the fact that the city local authority on the discovery of the first case of plague at once directed all their resources to prevent the extension of the disease, and with the gratifying result that the epidemic was confined to a single district of the city, with the exception of two cases which occurred in the neighbouring borough of Govan. Excluding three fatal cases of probable plague, but including the Govan cases, it is found that there were in all 29 patients attacked by the disease, of whom nine died, the first on August 27th and the last on Oct. 6th. On Nov. 5th the medical officer of Glasgow was able to report that the last case had been dismissed from the hospital, and an order by the Board declaring the port free from plague infection was issued on the 14th. In transmitting this order to the local authority at Glasgow the Board recorded their high sense of the skill and energy with which the outbreak had been met, and expressed the opinion that Great Britain was under a heavy obligation to Glasgow for the promptitude and efficiency of the sanitary measures taken in the presence of a national emergency.

[1] THE LANCET, August 24th, 1901, p. 567.

The late Dr. Adam Lawson Kelly, Glasgow.

By the painfully sudden death of Adam Lawson Kelly, M.D. and L.F.P.S. Glasg., on August 18th there has been removed from the profession one of the most experienced practitioners of the generation now gradually disappearing from view. For nearly 40 years Dr. Kelly conducted an extensive practice among patients of all ranks and classes, and by his skill no less than by his genuine kindliness of heart won the affection and confidence of a larger circle than it is given to most men to command. His busy life did not exclude a practical part in the general interests of the profession, as is shown by the fact that Dr. Kelly was elected by his brethren to offices of honour and trust in the Faculty of Physicians and Surgeons and to a seat at the board of Anderson's College Medical School. The tribute of regard and respect which is paid to his memory must needs include a word of admiration for the courage with which some 20 years ago he faced a serious financial position due to a disastrous bank failure. But this, indeed, was the man—gentleness with strength.

August 28th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Prison Statistics in Ireland.

THE twenty-third annual report of the General Prisons Board in Ireland, which is dated July, 1901, has just been issued in the form of a blue-book. The number of criminal prisoners committed to the local prisons during the year with which the report deals was 32,924, the daily average number in custody being 2393. Compared with the previous year these figures show a reduction of 3198 in the number of committals and of 221 in the daily average in custody. There were also 58 committals to local prisons under civil process. As in past years the sentences on local prisoners have for the most part been for very short terms, those of one week or less amounting to 42 per cent. of the total number of committals. Under the heading of juveniles, which include all prisoners below the age of 16 years, 309 committals are mentioned, this number being a small increase over any of the totals for the past five years. The report shows a considerable increase in the number of naval and military prisoners, a state of things which is no doubt due to an increase in the number of miscellaneous troops under arms and the extensive scale on which the naval manœuvres were carried out. Under the Inebriates Act of 1898 a State reformatory was opened at Ennis in June, 1899, part of the county Clare prison having been altered for this purpose. The board's report on the institution shows that during the year which ended on March 31st, 1901, six male and 10 female habitual drunkards were admitted to the reformatory under the care of Dr. George Faris, the medical officer, whose interest in the work is specially noticed. Of this number one male patient has been discharged in consequence of ill-health, one female has been certified insane, and one female has terminated her period of detention.

The Meat Traders on Tuberculosis.

Under the somewhat novel heading, "Decrease of Tuberculosis," the *Irish Times* of August 27th contains an interesting communication from Mr. William Field, M.P., in support of his contention advanced at the meeting of the recent British Congress on Tuberculosis that the disease was rapidly decreasing although the consumption of meat was increasing. In reference to the decrease of tuberculous disease in man he quotes Dr. Arthur Ransome's "Researches on Tuberculosis," 1867-1895: "Grouping all forms of tuberculosis together it may be concluded that an enormous decrease in the disease has taken place; a decrease that means the saving of at least 75,000 lives every year in the present population of England and Wales—three-quarters of a million persons within the last decade." As to the increase in the consumption of meat, he quotes from the Board of Agriculture returns, 1896: "That the consumption of meat per head of population in the period 1876-80 averaged 112 pounds." From the same official returns for 1897 it appears that the consumption of meat per head of population had increased to 131 pounds. Mr. Field states that the meat traders—of whom he is a representative one—desire scientific inquiry, believing that it will prove their contention that localised animal tuberculosis is not communicable to man through the medium of cooked meat. He states, moreover, that they earnestly protest against the confiscation and destruction of sound food and the enormous injury caused to the animal industry of the three kingdoms by measures which are really unnecessary to the preservation of the public health.

Nurses at the Belfast Workhouse.

A long discussion took place at the weekly meeting of the Belfast Board of Guardians on August 20th on the subject of the nurses in the workhouse. It came out in the debate that among the probationers resignations were numerous and it was suggested that it was due either to the fact that everything was not made as comfortable for the nurses as might be, or that nurses after being trained left for more remunerative engagements. It was decided that the infirmary committee should be asked to inquire into the whole matter. It was stated that eight of the nurses were suffering from typhoid fever.

The Belfast Lunatic Asylum.

From the annual report of Dr. W. Graham, resident medical superintendent of the Belfast Lunatic Asylum, for the year ended Dec. 31st, 1900, it appears that there were in the asylum on Dec. 31st, 1899, 499 males and 408 females, making a total of 907, while during the year 1900 there were admitted 198 males and 181 females, making a total of 379 admitted. As a result 697 males and 589 females, a total of 1286, were under treatment. 124 persons were discharged and 71 died. The unusual number of admissions (379) is due, to a considerable extent, to the transference of 188 cases from the Belfast Workhouse, the largest number ever received from that institution. There is no doubt that 379 admissions show that insanity is not on the decline as it is an increase of 50 per annum out of a population of 350,000. Dr. Graham wisely combats the view that it should in a pessimistic vein be said that nothing can be done as all this increase is due to heredity; he shows that heredity only means that men are born with a tendency to this or that disorder, and that, under proper conditions, in many instances such tendencies may remain only such and never become actualities. It is from a study of the "proper conditions" that the most fruitful results in the reduction of lunacy may be fairly anticipated. Our duty is to let the people know what are the physiological laws which govern and regulate health so that those with a predisposition to insanity may so order their lives that their nervous system may be better fitted to resist the invasions from without, or the development from within, of those toxins which frequently give rise to mental aberration. It is in this connexion worth noting that the increase in the number of insane persons obtains not among the upper and upper half of the middle classes, but mainly in the ranks of the poorest and most uneducated of the people; hence, Dr. Graham thinks it may be assumed that the bulk of mental derangement is due to neglect or violation of fundamental hygienic laws. He is afraid that among the working classes higher wages and shorter hours mean only increased facilities for self-indulgence, as there is not the slightest proof that the improvement in the prospects of the lower classes has led to a greater degree of self-control. Reference is also made in the report to the great event in the history of the asylum of the past year—the acceptance by the committee of the principles of the villa colony system, which is a great step in advance. The gross expenditure for the financial year was £23,371 5*s.* 6*d.*, being a capitation cost of £24 18*s.* 5*d.*, or an increase of 15*s.* 1*d.* on the preceding year; this slightly increased cost being due to the higher prices paid for fuel and provisions.

The Royal Victoria Hospital, Belfast.

At a meeting of the construction committee of this hospital, held on August 23rd, the architect made the gratifying announcement that the builder was making such satisfactory progress, and was so far ahead of his time-limit—a most unusual circumstance—that it was probable that in another year the new hospital might be ready. It is now quite possible to get a fair idea—the building having proceeded so far—of the anatomy and proportions of the new hospital, and those who have taken a deep interest in the matter feel that the Royal Victoria Hospital, in its structure as well as in the manner of its heating, lighting, and ventilation, will be unique, and will exercise a marked influence in the future construction

of such institutions. It is rumoured that the King will come over early next year to fulfil his previous engagement in connexion with the hospital which was abandoned owing to the lamented death of Queen Victoria, to whom the present building is being erected as a memorial.

Poisoning by Sulphate of Copper.

Toxicologists will have to note that there is another risk of poisoning by sulphate of copper than those hitherto commonly recognised, and that is through the spraying of potatoes to prevent "potato blight." It appears from the evidence given at an inquest held in Ballymena on August 23rd that a farm-labourer, named James Gordon, was working on the farm of Mr. G. T. Graham, J.P., Ballee, Ballymena, on August 19th and 20th. He had a spraying machine strapped on his back and was spraying potatoes. On the 19th he complained before dinner of being sick; on the 20th he went home, partook of some supper (potatoes) at 7 o'clock, and retired to rest between 9 and 10 o'clock. In the early morning he was taken severely ill and Mr. Alexander Duncan of Ballymena, who saw him at 4.30 A.M. on the morning of the 21st, found him suffering from severe cramps all through his limbs and body, his heart failing, and his body covered with free perspiration. He died at about two o'clock in the afternoon of the 21st. He had a fresh wound on his hand which was perfectly blue with the "bluestone" which was chiefly sulphate of copper. Mr. Duncan said that if there were scratches on the hands of the person engaged in spraying potatoes, or if the person inhaled the spray, it might possibly produce the collapse. His evidence was that deceased had died from collapse following irritant poisoning. Dr. A. McN. D'Evelyn of Ballymena, who also saw the deceased, agreed with Mr. Duncan as to the cause of death, and said that to take food without washing the hands after being engaged with a spraying machine was extremely dangerous, and he believed, as it was a hot day, that in breathing in the fine vapour of the spray a considerable quantity of poison might have been absorbed. The jury, after recording that the deceased died "from collapse following upon irritant poison," possibly through the absorption of the mixture, sulphate of copper, used in the spraying machine which he carried and used on August 19th and 21st, added a rider that the evidence brought out by Mr. Duncan and Dr. D'Evelyn ought to be a warning to farmers and farm-servants not to engage in spraying potatoes with lacerated hands, or to blow down the pipe of a sprayer, or to take food without washing their hands thoroughly, as any of these practices is extremely dangerous, the bluestone used being an irritant poison. It is possible that the wearing of gloves or long gauntlets and a respirator might be a useful preventive.

Public Baths for Cork.

Owing to the sewage of the city being conveyed into the river lovers of swimming in Cork have been at a distinct disadvantage, being obliged to travel long distances when they desired to indulge in their healthful recreation. The municipality recently decided to rectify this state of affairs, and last week the Mayor officially opened very commodious baths in the centre of the city. One of the baths is free to the public and for use of the other a small fee is charged. All persons, preparatory to entering the swimming baths, are obliged to have a thorough wash in smaller baths specially set aside for the purpose. On the opening day swimming contests were organised by the officials of the corporation. Prizes were offered and there were several competitors. With a view to encouraging large numbers to use the baths it is proposed to hold similar contests periodically. It is pleasant to be able to record that on the second day as many as 2000 swimmers actually availed themselves of the opportunity and the attendants were kept unremittingly busy from early morning till night. A row of coloured tiles is arranged at the bottom of each bath to serve as a guide to divers, and, indeed, the city fathers are to be congratulated on having spared no expense in making the baths complete in every detail. The Mayor has made the very satisfactory statement that the fees received will not only cover all establishment charges, but will also pay the interest on the capital expended, while he points out that above all considerations of the kind are the immense advantages that must accrue to the health of the citizens at large.

August 27th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Dr. Calmette Bitten by One of his Snakes.

DR. CALMETTE, the director of the Pasteur Institute at Lille, has, as everyone knows, discovered a curative serum for the effects of snake-bite. This serum he prepares with his own hands in his own laboratory by immunising animals with successive doses of snake-venom. He was only the other day severely bitten by a trigonocephalus. This, however, was not due to any carelessness upon his part, for he takes every precaution in collecting the venom and has invented a kind of forceps which he introduces into the cage and with which he seizes the head of the snake so that it cannot escape. The cage is then opened and the snake being forced to open its mouth the venom, which appears in drops at the points of the fangs, is collected in a Pravaz syringe. Despite all precaution the forceps must have slipped, for Dr. Calmette was severely bitten on the right hand, and the venom of the trigonocephalus is extraordinarily rapid in its action. Dr. Calmette without delay gave himself an injection of his anti-venomous serum, but nevertheless the hand swelled up and acute fever set in; but by the afternoon of the same day Dr. Calmette was sufficiently recovered to attend a sitting of the Conseil-Général of the Department, at which he argued in favour of a grant in aid of the sanatorium which he has undertaken to found at Lille. On the following day he was perfectly well, having thus afforded in his own person, albeit unwillingly, a convincing proof of the efficacy of his excellent remedy.

A New Microbe Discovered in Dysenteric Patients.

Dr. Lesage of the Pasteur Institute has just announced that he has noted the presence of a new microbe in the blood of patients suffering from dysentery, a large number of whom he has had the opportunity of observing at the Saint-Mandrier Hospital at Toulon. The patients examined were cases of dysentery from China, Cochin China, Algeria, and a local form of the disease. The micro-organism appeared with great regularity, its number increasing as the disease progressed and diminishing with the return to convalescence. Without actually calling the microbe specific, it can at least be said that its development has a definite relation to that of dysentery and to that alone. It is very polymorphic, sometimes appearing as a micrococcus, sometimes as a streptococcus, but more often as a diplococcus, of which one portion is much smaller than the other. Dr. Lesage compares its appearance to that of a balloon with the ear attached. The diplococcus is motile, shining, and surrounded by a white capsule which often contains many diplococci. It stains badly, is decolourised by Gram's method, and grows well in liquid culture media. On gelose it forms indefinite cultures having the aspect of a granular veil. It does not coagulate milk. In the living body it is found plentifully in the various intestinal discharges of dysentery, such as the mucous débris of the stools, and also in dysenteric sputum. On post-mortem examination it is found in all organs but most of all in pure cultures of the mesenteric nervous system and in the swollen mesenteric glands. It is also found in the ulcerated intestinal mesentery. Cultures injected under the skin of a rabbit or of a guinea-pig bring about fatal septicæmia without, however, any intestinal localisation. In the cat there is not only septicæmia but a definite localisation in the large intestine which shows exactly the same clinical appearances as occur in man, such as congestion of the mucous membrane. Dr. Lesage is about to publish a further communication containing more details. This should be of great importance considering how competent is the observer and the special knowledge which he possesses of the bacterial flora of the intestine.

Medical Heroism.

The announcement recently made by Professor Koch at the British Congress on Tuberculosis that bovine tuberculosis is not transmissible to man has not only been the means of evoking much surprise, but has also been the cause of sundry medical men offering themselves as subjects for an experiment with regard to a question which affects in the most marked manner the social hygiene of the whole human race. From Paris Dr. Garnault has written a letter placing

himself at the disposition of Professor Koch for the purpose of experiment. At present Dr. Garnault has received no answer. In his letter he stated that he was 41 years of age, that he weighed over 100 kilogrammes, that his height was one metre 81 centimetres, and that his health was perfect. He added that he had no children and that he was anxious to submit himself for a tuberculosis experiment. In his opinion it was only natural that medical men should be willing to sacrifice themselves in such a cause, for in wars men of far inferior education and mental capacity offer themselves by thousands in a much less noble cause. Although the lay press has nothing but praise for Dr. Garnault's heroic offer the medical press is more sceptical. Putting aside the fact that Professor Koch is not in the least likely to accept the responsibility of such a risky experiment—one moreover, which anyone has the right to make for himself without involving the German professor in the matter—the medical press in general points out that the sacrifice would be useless and would prove nothing. Dr. Garnault, or any other person who tried the experiment, might be refractory to tubercle, a reason which would be sure to be given if the subject of the experiment survived, while if he were to succumb plenty of people would say that he had contracted tubercle in some other method than by the inoculation. Some of the papers have revived the old idea of making the experiment upon criminals condemned to death, as did Ambroise Paré for his first operation of cutting into the bladder. That such an idea should have been formulated has, in my opinion, one good point—namely, that it will impress the public in a forcible manner, far more than any conference or pamphlet, with the importance of hygienic measures as a method for the prevention of tuberculosis.

August 27th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Serum Treatment of Tetanus.

AT a recent meeting of the Verein für Innere Medicin Professor Leyden showed a patient who had suffered from tetanus but who had been successfully treated by injections of Behring's antitoxin. The case was remarkable from the fact that the antitoxin was injected into the subarachnoid cavity of the spine. The patient was a stableman, 22 years of age, who had shown symptoms of trismus and tetanus for three days. Immediately after his admission into the Charité Hospital his spinal canal was punctured, 10 cubic centimetres of fluid were withdrawn and five cubic centimetres of antitoxin were injected. A similar amount was injected three days subsequently. After the injection the patient's temperature which had been 41° C. (105·8° F.) decreased on the same day to 38·5° C. and on the next day to 37·4° C. (99·4° F.). Previously to the administration of the antitoxin a subcutaneous injection of morphia was given and hydrate of chloral was administered afterwards. Professor Leyden said that according to his experience cases of tetanus in which the temperature rose to 41° C. were always fatal, and that the rapid decrease of the temperature after the injection and the ultimate recovery of the patient were therefore due to the antitoxin. Another remarkable feature of the case was that there was no trace of a wound by which the infection might have been introduced. It is known, however, that horsedung contains tetanus bacilli, and the patient being a stableman might possibly have contracted the disease by inhalation. The sputum was therefore examined microscopically, but the result was negative. Mice inoculated with the sputum showed no ill-effects, but after inoculation with the patient's spinal fluid they suffered from tetanus.

The "Practical Year" of the Medical Curriculum.

The new regulations relative to the State examination qualifying for medical practice provide that candidates after having passed the examination shall spend a year in practical work at a hospital or similar institution as a "practicant," and that diplomas shall not be granted until the "practical year" has been completed. The Minister of Public Instruction has recently ordered that only hospitals with at least 50 beds shall be privileged to receive practicants, so that each practicant may have 25 beds. They will have to work not only in general hospitals but also in lying-in hospitals, in lunatic asylums, in hospitals for diseases and injuries of the eye, in children's hospitals, and in sanatoria for phthisical patients but not in hospitals or asylums for incurables. A portion of the practical year may be spent not in an hospital but in an institution where some department of medical science can be studied, such as in an anatomical or physiological laboratory, or in the dissecting-room of a university or public hospital. The hospitals and institutions which receive practicants will be registered by the Government, and a list of them will be published for the information of candidates.

Gonorrhœa in a Children's Hospital.

A sad state of matters has recently formed the subject of an article in a Berlin daily newspaper. It appears that in the Elizabeth Hospital for Children some of the patients are infected with gonorrhœa and that new cases have occurred within the last few days. The infection is said to have been introduced a year ago by three children suffering from internal complaints, in whom the presence of gonorrhœa was not recognised at the time of admission. The disease spread notwithstanding the prophylactic measures adopted by the medical staff and within a year more than 40 children became infected. The announcement of these facts has created a sensation, and in the newspapers the nurses, who belong to a religious corporation, are accused of inattention to cleanliness. The matron in an interview with a reporter said that the conditions which exist in some working-class families must be held responsible for the calamity which has taken place. She added that a good many children suffering from diseases of that description were admitted, but that until now no case of infection of other children within the hospital had happened during the 27 previous years of its existence. The medical officer of health has inquired into the circumstances, but it does not appear that he has found any responsible person to be at fault.

August 26th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Annual Meeting of the Executive Health Officers of Ontario.

THE annual meeting of the Executive Health Officers of Ontario was held on June 25th and 26th in the city of Brantford, Ontario, under the presidency of Dr. W. T. Connell, pathologist of Queen's University, Kingston. An important discussion took place on small-pox and a number of representative physicians from different parts of the province united in testifying from their experience and observation that thousands of cases of so-called vaccination were utterly worthless as protection against the disease. The causes which can be ascribed to this are careless handling and administration by medical men, careless transportation by railways, but chiefly the desire of the manufacturers to carry the refining too far and, as one delegate put it, to sacrifice the practical for the scientific or commercial side of it. After a lengthy discussion the meeting appointed a special committee to look into the question and to report at the next annual meeting. In his annual address the president referred to the question of unsuccessful vaccination, stating that after investigating 5000 cases in and around Kingston, where the vaccine was supplied by practically only two firms, the results produced were exceedingly anomalous. Dr. Connell argued for the establishment of county laboratories and county medical health officers. Another important question which was fully discussed was the establishment of county sanatoria for the treatment of consumptives and an influential committee was appointed, one member from each county in the province, to look after the question of having by-laws submitted to the people for the establishment of these institutions. Dr. E. E. Kitchen of St. George was elected President and Mr. Thomas MacFarlane, chief dominion analyst, Ottawa, vice-president, Dr. P. H. Bryce being re-elected secretary.

Barbers' Association of the Province of Quebec.

In 1899 an Act was passed by the local legislature incorporating the Barbers' Association of the Province of Quebec, which stipulated that every practising barber should become a member of the association and should submit to medical inspection of their shops and persons with a view to prevent the spread of certain diseases, and also to preserve cleanliness and other sanitary conditions. At first the proposal was cordially received, but now there seems to be no end of trouble over the incorporation of the association.

Finally, after a trial of three years, a petition has been circulated requesting the Lieutenant-Governor to revoke certain sections of the Act which are said to bear heavily upon the journeymen barbers. The reformers declare that the so-called hygienic precautions are unnecessary, as cleanliness constitutes the only one to which the barbers can be restricted, and that the pretended medical examination has been a mere farce and was only designed for the purpose of extracting another $2 fee from the barber so examined. They consider that the barber so examined by a medical man may become contaminated from one moment to another, and to make such examination really useful and serious it would be necessary to examine the barber after each operation, which they deem utterly impracticable.

Anthrax in Eastern Ontario.

Recent reports received by the Department of Agriculture at Ottawa show that anthrax has broken out at several points in the province of Ontario. The disease is at yet confined to cattle and some horses, many of the former and some few of the latter having died from the disease, but fears are enter tained that it may spread to human beings on account of the foolhardiness of a farmer who, contrary to the warnings of the local veterinary surgeon, sent hides from the dead cattle to a tannery near by, the employés of which are now under strict surveillance. Considerable difficulty has also been experienced in obtaining anthrax vaccine from the Pasteur Institute in Chicago, but that difficulty has at last been overcome and the Department of Agriculture is now in possession of a plentiful supply to cope with the outbreak.

Sanitary Regulations for Ontario Lumber Camps.

After the experience with which the provincial board of health of Ontario has had to contend for the past eight months in the northern portions of the province in checking an unusual epidemic of small-pox, the Ontario Government has deemed it prudent to adopt special regulations of a sanitary character, with a view to safeguarding the health of employés of such places as lumber camps, saw-mills, mining camps, railway construction camps, smelting works, &c. There are over 400 unorganised townships in the northern part of Ontario, stretching from the Ottawa river on the east to the province of Manitoba on the west, a distance of 1200 miles, a section which contains over 100,000 people; and it is especially for the safety of the health of these people that the Government has thought fit to provide for outbreaks of contagious diseases and for the hygienic conditions of camps, works, &c. The regulations will seek to hold the owners, managers, or foremen responsible, and these or the medical officer present will have to report direct to Toronto should small-pox or any other contagious disease appear in their midst.

Ottawa Contagious Diseases Hospital.

For some years now Ottawa has been struggling to establish a proper hospital for the reception of persons who are the subjects of contagious or infectious diseases, but up to the present time these efforts have proved ineffectual. A cottage hospital was erected in the Rideau river several years ago, but on account of there being a liability to inundation from spring freshets, the site was condemned by the provincial health authorities and ever since Ottawa has been seeking a new and more appropriate site. A site was chosen adjoining the residence of Lord Minto, the Governor-General, but his lordship would not hear of such a thing, so a new site was selected on the high sandy banks of the Rideau, in the rear of the Protestant General Hospital; and the city council is said to have agreed to pay $31,000 for it, although the price is double the assessed value of the property. The mayor of the city has ordered an investigation. An important judgment has just been given by Judge McTavish which establishes the 150-yard limit from any residence. In the meantime the city has more than its share of contagious diseases and an inadequate means of providing isolation.

Deaths in Maternity Homes in Toronto.

A mortality of 50 per cent. in a maternity home just beyond the northern outskirts of Toronto has recently been causing considerable comment. It is not under the jurisdiction of the civic health department, but the death-rate has been deemed so excessive as to merit an investigation into the causes thereof. In the city proper there are 15 maternity homes, which for the past two or three years have been directly placed under the special supervision of a medical man who reports to the medical health officer. There are also 35 baby farms which are all subjected to very close inspection and a careful record is kept. The infants born in the maternity homes of Toronto last year numbered 130. Of these 14 died, 13 were adopted into good homes, three were reclaimed by, and the same number were forsaken by, the mothers, and the rest remained in the homes.

August 19th.

Obituary.

JULIUS ST. THOMAS CLARKE, M.D., M.S. LOND., F.R.C.S. ENG.,

SENIOR SURGEON TO THE LEICESTER INFIRMARY.

BY the death of Dr. Clarke Leicester loses one of its oldest medical practitioners, he having been in practice there for nearly 40 years. He started his medical education at Guy's Hospital, where he had a very brilliant record, taking the exhibition and gold medal in anatomy and the gold medal in physiology at the University of London in 1861, and also the treasurer's gold medal of Guy's Hospital in clinical surgery. He started practice in Leicester and in the earlier years was medical officer to the workhouse, but on a vacancy occurring on the infirmary staff he abandoned this work for the post of surgeon to that institution, which he held up to the time of his death, then being senior surgeon. Besides his connexion with the infirmary Dr. Clarke was honorary medical officer to the Institution for the Blind, and was most warmly interested in the work. He was a keen advocate and worker for the temperance cause and had been himself a total abstainer for the greater part of his life; in fact, his whole life was one of great asceticism, luxury of any sort being completely foreign to his nature, while those who knew him best knew also that a single-minded devotion to duty was the keystone of his life. He was also much interested in, and successful with, treatment of patients suffering from the effects of abuse of drugs and was medical officer to Tower House, Leicester, for 27 years. All throug his life his great desire was to keep well abreast of the medical knowledge of the day, and as a proof of his energy and indomitable will power it may be mentioned that he took both parts of the Fellowship of the Royal College of Surgeons of England while engaged in a very arduous practice and also that he took the degree of M.D. London only nine years ago at the age of 55 years, and that of M.S. two years later. Although with advancing years his health was not so good as formerly, the outrage which befel him last October—that of being shot through the sacrum by a former patient who had been confined in an asylum on account of homicidal tendencies—rendered his physical condition much weakened, but nevertheless his will-power carried him through eight months' work, when he took a holiday in Scotland but only to return at the end of 10 days on account of attacks of syncope. He was able to go out till the day before his death which occurred during his sleep on August 2nd at the age of 64 years. The only wish ever expressed, and that at the time of his accident, was that he should be taken once again to the infirmary he loved so well, and this was able to be fulfilled as the first part of the funeral service was held in the chapel of that institution, the interment taking place in the Leicester Cemetery on August 6th. The motto of his life, often quoted and always acted up to, was:—

> "When I sought Happiness she fled
> Before me constantly;
> Weary, I turned to Duty's path
> And Happiness sought me."

DAVID FRANCIS SITWELL CAHILL, M.D., L.R.C.S. EDIN.

BY the death of Dr. Cahill Berwick-on-Tweed loses one of its oldest and most respected practitioners. He was the son of the late Surgeon-Major Cahill of the 25th Regiment of Foot and received his medical education at Edinburgh and Paris. In 1845 he obtained the degree of Doctor of Medicine of the Edinburgh University, and in the following year became a Licentiate of the Royal College of Surgeons of Edinburgh. For 50 years he carried on an extensive practice in the

Border districts and in May, 1896, celebrated his jubilee as a practitioner. He then retired from active medical work. Dr. Cahill was a member of the Berwick Naturalist Club and was first senior physician and surgeon and subsequently consulting physician to the Berwick Dispensary. The deceased gentleman, it is alleged, was assaulted some time ago and he was recovering from the injuries he then received when an attack of influenza brought about his death on August 18th. He leaves a widow and grown-up son and daughter.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Nath of Königsberg, an active hygienist who took great interest in the training of midwives; Dr. Hermann von Widerhofer, professor of Children's Diseases in the University of Vienna and Body Physician to the Imperial Family. His most notable published papers dealt with abdominal and glandular diseases in childhood and with questions in heredity.—Dr. Ernst Braun, formerly director of the Lower Austrian Foundling and Lying-in Hospitals.—Dr. Hameau, vice-president of the Medical Association of France.—Dr. Tordeus, professor *agrégé* in the medical faculty of the University of Brussels.—Dr. Maisch, formerly professor of materia medica in the Medico-Chirurgical College, Philadelphia.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—In August, 1901, the following candidates passed in the subjects indicated:—

Surgery.—J. C. Baggs (Section II.), St. Thomas's and Westminster Hospitals; P. C. Burgess (Section II.), Middlesex Hospital; D. Fletcher, St. Bartholomew's Hospital; F. I. M. Jupe, Cambridge; G. J. W. Keigwin (Sections I. and II.), London Hospital; E. R. Risien (Section II.), St. Bartholomew's Hospital; W. B. Skelton, Guy's Hospital; and M. J. Williams, St. Bartholomew's Hospital.

Medicine.—J. W. W. Adamson (Section I.), St. George's Hospital; J. H. Beasley (Sections I. and II.), Birmingham; R. C. Bennett, University College Hospital; C. E. H. Leggatt (Sections I. and II.), St. Mary's Hospital; E. T. Longhurst, St. George's Hospital; D. J. Morgan (Sections I. and II.), St. Mary's Hospital; E. Osborne (Sections I. and II.), Birmingham; J. E. Skey (Section II.), Westminster Hospital; A. W. D. Thomson, St. George's Hospital; and P. P. Tobit (Section II.), King's College Hospital.

Forensic Medicine.—J. W. W. Adamson, St. George's Hospital; R. C. Bennett, University College Hospital; H. A. Chaplin, St. George's Hospital and Glasgow; C. E. H. Leggatt, St. Mary's Hospital; E. T. Longhurst, St. George's Hospital; D. J. Morgan, St. Mary's Hospital; E. Osborne, Birmingham; A. W. D. Thomson, St. George's Hospital; P. P. Tobit, King's College Hospital; and S. C. Wilkinson, Leeds.

Midwifery.—R. C. Bennett, University College Hospital; T. S. Davies, St. George's Hospital; J. W. H. Morrison, Durham; E. S. Perkins, Leeds and Guy's Hospital; R. Rees, Cambridge and St. Mary's Hospital; and S. C. Wilkinson and F. W. B. Young, Leeds.

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery: J. C. Baggs, E. T. Longhurst, D. J. Morgan, J. W. H. Morrison, E. S. Perkins, E. R. Risien, W. B. Skelton, A. W. D. Thomson, and M. J. Williams.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* An institute of state medicine is about to be established.—*Bologna:* Dr. Novi, Extraordinary Professor of Experimental Pharmacology, has been promoted to the Ordinary Professorship.—*Heidelberg:* Dr. Gaupp has been recognised as *privat-docent* of Gynæcology. The Senate has directed that foreigners can only be admitted as medical students when they can show that they have passed an examination in general knowledge equivalent to the German *Abiturienten Examen.*—*Leipsic:* Dr. H. Füth has been recognised as *privat-docent* of Gynæcology.—*Rostock:* Dr. W. Müller of Aix-la-Chapelle, formerly assistant to Professor König in Berlin, has been appointed to the chair of Surgery vacated by Dr. Graser who is migrating to Erlangen.—*Tubingen:* Dr. A. Dietrich has been recognised as *privat-docent* of Pathological Anatomy.

BEQUESTS TO HOSPITALS. — The late Mr. R. Bowerman West of Exeter has bequeathed £4000 each to the Royal Devon and Exeter Hospital and West of England Eye Infirmary, Exeter; £1000 each to the Exeter Dental Hospital, Exeter Dispensary, Ockenton Convalescent Home, Western Counties Idiot Asylum, and the Taunton and Somerset Hospital; and £500 each to the Ottery St. Mary Cottage Hospital and the Axminster Cottage Hospital.

NATIONAL SOCIETY FOR THE PREVENTION OF CRUELTY TO CHILDREN.—Mr. Peregrine Purvis has given a donation of £1000 to this institution.

ADDED WATER IN BUTTER.—At the Cheltenham Police-court on August 22nd certain butter-merchants were fined £20 for selling butter containing 6·2 per cent. of added water. It was stated that this firm had been previously convicted six times within a few months, the fines being either £50 or £30.

POOR-LAW PATIENTS AT THE SEASIDE.—At the meeting of the Merthyr Tydvil Board of Guardians held on August 17th it was mentioned that the guardians proposed to send convalescent patients from the workhouse to the seaside, the Local Government Board having written stating that if the medical officer of the workhouse was of opinion that a visit to the country or seaside was necessary for the health of any individual inmate, and if he certified accordingly, the assent of the Local Government Board to the expenditure would not be required.

NORTH DEVON INFIRMARY, BARNSTAPLE.—The seventy-fifth annual meeting of the friends of, and subscribers to, this institution was held on August 20th. The report stated that during 1900 there were 640 in-patients admitted and 2756 out-patients treated, as compared with 651 in-patients and 2710 out-patients in 1899. The financial statement showed that the expenditure amounted to £2779 and the income to £2405. The committee allude to the good work of the convalescent home at Morthoe which is in connexion with the infirmary.

KENT BENEVOLENT MEDICAL SOCIETY.—The annual meeting of the members of the above society was held on July 17th at Maidstone, under the presidency of Dr. C. E. Hoar. The accounts for the year ending July 5th last were laid before the meeting after being duly audited, and as it appeared that a balance of £415 might probably be anticipated for the coming year it was resolved that a sum of £100 should be added to the invested capital of the society and that the sum of £255 should be distributed amongst the several applicants for assistance whose names were then before the meeting. The society, which was instituted in the year 1787, has been the means of benefiting the widows and orphans of its members (and in some cases the members themselves) and thus has relieved distress in the families of those who had long and honourably laboured in the medical profession. For several years past the society has been enabled to distribute annually a sum of about £300 towards the relief of deserving cases, and the fact that the society now has an invested capital of £9500 is a guarantee that the good work which has been carried out in the past will be continued. The secretaries of the society are Dr. C. E. Hoar of Maidstone, Mr. H. G. Sadler of Canterbury, and Dr. H. C Burton of Lee, and the assistant secretary is Mr. James Wiltshire of the Bank, Canterbury, and they will be pleased to furnish any further particulars which may be desired.

THE LATE MR. W. H. F. RAMSDEN.—In memory of the late Mr. Ramsden the inhabitants of Saddleworth have subscribed for the erection of a handsome public monument and drinking-fountain at Dobcross. The members of the district council and a large gathering, amongst whom were three sons of the late Mr. Ramsden, themselves medical men, witnessed the unveiling ceremony, which was performed by Miss Brierley of Denshaw on August 24th. In formally handing the monument over to the care of the district council, the Rev. H. P. Edwards said that they were met together on a unique occasion. The memorial was the result of a spontaneous outburst of feeling in Saddleworth when the news came of the sudden decease of Mr. Ramsden and was a testimony of the great affection in which he was held. The Rev. Charles Ramsden said that it was a matter of great pride and gratification to the family that the people of Saddleworth had been so determined that his father's memory should not be allowed to die out from amongst their hills and valleys. The Rev. W. T. John said that gratitude was not dead and that those of the present generation needed no memorial to remind them that Mr. Ramsden had lived amongst them. Future generations would, however, be reminded of one whose determination was to do his duty and would be encouraged to go and do likewise. The monument is of polished Aberdeen granite, bears a gas-lamp, and is, by the kindness of the corporations of Ashton, Stalybridge, and Dukinfield, provided with water

for man and beast free and for ever. On the column is the inscription: "W. H. F. Ramsden, Physician and Surgeon, for 24 years Medical Officer of Health to the District. Born 1833. Died 1900. Erected 1901 by public subscription to commemorate his devoted services to the people of Saddleworth. 'Write me as one that loves his fellowmen'"

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL AND COX, Henrietta-street, Strand.
Diseases of the Stomach and their Surgical Treatment. By A. W. M. Robson, F.R.C.S., and G. A. Moynihan, M.S. Lond., F.R.C.S. Price 15s.
Lessons on Massage. By Margaret D. Palmer. Price 7s. 6d.

BAILLIÈRE, J. B., ET FILS, Paris.
Traité de Médecine et de Thérapeutique. By P. Brouardel and A. Gilbert. Price 12 francs.

BUNCLE, T. AND Co., Arbroath.
With the Scottish Yeomanry. By T. F. Dewar, M.D., B.Sc. Price not stated.

CHURCHILL, J. AND A., Great Marlborough-street, W.
Dissection Outline and Index for Students. By W. A. Campbell, B.S., M.D. Second edition, revised. Price 3s.
Guy's Hospital Reports. Edited by J. H. Bryant, M.D., and F. J. Steward, M.S. Vol. lv., being Vol. xl. of the Third Series. Price to subscribers, 6s. non-subscribers, 10s. 6d.

HILTON AND Co., Calcutta.
A Treatise on Materia Medica and Therapeutics. By Rakhaldas Ghosh, L.M.S. Cal. Univ. Vol. i. Cloth, price 1·14, or 2s. 6d.

KARGER, S., Karlstrasse 15, Berlin, N.W.
Atlas der Krankheiten der Nase. By Privatdocent Dr. P. H. Gerber. Fourth Part. Price 6 marks.

KIMPTON, HENRY, Furnival-street, Holborn.
A Practical Treatise on Diseases of the Skin. By J. N. Hyde, A.M., M.D., and F. H. Montgomery, M.D. Price 25s.
A Treatise on Surgery by American Authors. Edited by Roswell Park, A.M., M.D. Price 25s.

LAJOUANE, FÉLIX, Buenos Aires.
La Peste Bubonique dans la République Argentine et au Paraguay. Epidémies de 1899-1900. Rapport par Dr. Luis Agote and Dr. A. J. Medina. Price not stated.

LANE, J., London and New York.
The Book of Asparagus. By C. Ilott, F.R.H.S. Price 2s. 6d.

LAYTON, C. AND E., Farringdon-street, E.C.
Handy Newspaper List, 1901. Price 6d.

LEHMANN, J. F., Munich.
Unterleibsbrüche. By Dr. G. Sultan. Price 10 marks.

LONGMANS, GREEN, AND Co., Paternoster-row, London.
Practical Text-book of Plant Physiology. By D. T. Macdougal, Ph.D. Price 7s. 6d.

MASSON ET CIE, Paris.
La Lutte Sociale contre La Tuberculose. By Dr. R. Romme. Price 2 francs 50 cents.
Section de Médecine Légale, XIIIe. Congrès International de Médecine, Paris, 1900. Published by M. Motet, Secretary of the Section. Price 5 francs.

MAUD, C., Paris.
Matière Médicale Zoologique. By H. Beauregard. Price 12 francs.

NICCOLAI, L., Florence.
Osservazioni Cliniche sulla Peste Bubbonica. By Dr. G. Polverini. Price, lire 2.50.

OLIVER AND BOYD, Edinburgh.
Report of the Edinburgh and East of Scotland South African Hospital. By D. Wallace, C.M.G., F.R.C.S. Edin., and F. D. Boyd, M.D., F.R.C.P. Edin. Price not stated.

PUTTKAMMER AND MÜHLBRECHT, Berlin.
Die Sterblichkeit der Haupt-und Residenstadt Budapest, 1891-1895, und deren Ursachen. By Dr. Josef von Körösy. Price 6 marks.

REBMAN, LIMITED, 125, Shaftesbury-avenue, W.C.
The Theory and Practice of Medicine. By H. W. Syers, M.A., M.D. Cantab., &c. In two vols. Vol. i. Price 15s.
Guide to the Microscopic Examination of the Eye. By Professor R. Greef. Translation from the Second German edition by H. Walker, M.A., M.B., C.M. Price 5s.
The Sanitation of British Troops in India. By E. C. Freeman, Major R.A.M.C. Second edition. Price 2s. 6d.

RICHARDS, G., Henrietta-street, Covent-garden.
How to Nurse the Sick. By Florence White. No. 1 of the Home Series. Price 2d.

SAUNDERS, W. B. AND Co., Philadelphia and London.
The Pathology and Treatment of Sexual Impotence. By Victor G. Vecki, M.D. Third edition. Price not stated.
Rhinology, Laryngology, and Otology, and their Significance in General Medicine. By Professor E. P. Friedrich, M.D. Authorised translation from the German. Edited by H. H. Curtis, M.D. Price 10s.
Bacteriology and Surgical Technique for Nurses. By Emily M. A. Stoney. Price 5s.
Atlas and Epitome of Ophthalmoscopy and Opthalmoscopic Diagnosis. By Professor Dr. O. Haab. Translation from Third German edition. Edited by G. E. de Schweinitz, A.M., M.D. Price 13s.
Practical Surgery for the General Practitioner. By Nicholas Senn, M.D., Ph.D., LL.D. Price 26s.
The Illustrated Medical Dictionary. By W. A. Newman Dorland, A.M., M.D. Second edition. Price 19s.
Modern Obstetrics, General and Operative. By W. A. Newman Dorland, A.M., M.D. Second edition. Price 16s.

SOCIÉTÉ D'ÉDITIONS SCIENTIFIQUES, Paris.
Appendicité, sa Pathogénie. By Dr. L. Vibert. Price 3 francs.
De l'Échinococcose Secondaire. By Dr. Félix Dévé. Price not stated.

UNWIN, T. FISHER, Paternoster-square, E.C.
De Omnibus. By the Conductor (Barry Pain). Price, 1s. paper; 2s. cloth.

URBAN AND SCHWARZENBERG, Berlin and Vienna.
Diagnostik der Geisteskrankheiten. By Professor Robert Sommer. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.

EMINSON, L., L.F.P.S. Glasg., L.S.A., has been appointed District Medical Officer of Cosford Union.

Mr. H. HINE has been appointed District Medical Officer of Guildford Union.

FORBES, N. HAY, F.R.C.S. Edin., J.P., has been appointed Honorary Consulting Surgeon to the Black Rock Convalescent Hospital and Consulting Surgeon to the Rother Valley Railway Company.

LAING, C. F., M.B., C.M. Glasg., has been appointed Medical Superintendent to the Somerset and Bath Asylum, vice Arthur Law Wade, M.D., deceased.

MILES, H. P., M.R.C.S., L.R.C.P. Lond., has been appointed District Medical Officer of Kingsbridge Union.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BELGRAVE HOSPITAL FOR CHILDREN, 77 and 79, Gloucester-street, S.W.—House Surgeon for six months. Gratuity £5, and board and lodging.

BETHNAL GREEN INFIRMARY.—Assistant Medical Officer. Salary at rate of £80 per annum, with board and residence.

BIRMINGHAM AND MIDLAND EAR AND THROAT HOSPITAL, 109, Edmund-street, Birmingham.—House Surgeon. Salary at rate of £40 per annum for first six months, and, if re-appointed: at rate of £60 per annum, with board, lodging, and washing.

BRISTOL GENERAL HOSPITAL.—Casualty House Surgeon. Salary £70 per annum, with board, residence, &c.

CARDIFF INFIRMARY.—Honorary Gynæcologist.

CHESHIRE COUNTY ASYLUM, Parkside, Macclesfield.—Junior Assistant Medical Officer, unmarried. Salary £130, rising to £150 per annum, with board, apartments, washing, and attendance.

CITY OF NOTTINGHAM WORKHOUSE INFIRMARY.—Assistant Medical Officer. Salary £160 per annum, with furnished rooms.

CORNWALL COUNTY ASYLUM, Bodmin.—Junior Assistant Medical Officer, unmarried. Salary £120, rising to £150, with board, furnished apartments, &c.

COUNTY ASYLUM, Lancaster.—Assistant Medical Officer, unmarried. Salary £150, increasing to £200, with apartments, board, washing, and attendance.

CUMBERLAND INFIRMARY, Carlisle.—Resident Medical Officer. Salary at rate of £80 for first six months, and £100 second six months per annum respectively, with board, lodging, and washing.

DENBIGHSHIRE INFIRMARY, Denbigh.—House Surgeon. Salary £100, with board, residence, and washing.

DISTRICT HOSPITAL, West Bromwich.—Resident Junior House Surgeon. Salary £50 per annum, with board, lodging, washing, and attendance.

GENERAL INFIRMARY, Gloucester, and GLOUCESTERSHIRE EYE INSTITUTION.—Assistant House Surgeoncy for six months. Salary at rate of £30 per annum, with board, residence, and washing.

GLAMORGAN COUNTY ASYLUM, Bridgend.—Assistant Medical Officer, unmarried. Salary £175, with board, lodging, attendance, and laundry.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, and washing. Also Junior House Physician for six months. Salary at rate of £20 per annum, with board, lodging, and washing. Also non-resident Assistant House Surgeon. Salary at rate of £30 per annum, with luncheon and dinner. Also Junior House Surgeon for six months. Salary at rate of £30 per annum, with board, lodging, and washing.

KASR-EL-AINY HOSPITAL AND SCHOOL OF MEDICINE, Cairo, Egypt.—Physician to the Hospital and Professor of Clinical Medicine at the School. Salary £E320 per annum and private practice allowed.

LIVERPOOL STANLEY HOSPITAL.—Third House Surgeon. Salary £70, with board and residence.

LONDON HOSPITAL, Whitechapel, E.—Surgical Registrarship. Salary £100 per annum.

MANCHESTER CHILDREN'S HOSPITAL.—Junior Resident Medical Officer, unmarried, for six months, and eligible for election as Senior for another six months. Salary at rate of £80 a year when Junior, and £100 a year as Senior, with board and lodging.

MANCHESTER ROYAL INFIRMARY.—Pathological Registrar. Salary £100 per annum.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician. Salary at rate of £40 per annum. Also House Surgeon. Salary at rate of £40 per annum. Also Assistant House Physician. Salary at rate of £20 per annum. Also Assistant House Surgeon. Salary at rate of £20 per annum. Each for six months.

NORTH WALES COUNTIES LUNATIC ASYLUM, Denbigh.—Second Assistant Medical Officer. Salary £120 per annum, rising to £160, with board, residence, and washing.

OWENS COLLEGE, Manchester.—Junior Demonstrator in Physiology. Salary £100, rising to £150 per annum.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with rooms, board, and washing.

ST. PAUL'S HOSPITAL FOR SKIN AND GENITO-URINARY DISEASES, Red Lion-square, W.C.—Clinical Assistant for three months.

SALFORD ROYAL HOSPITAL.—House Surgeon, salary £100 per annum; House Physician, salary £80 per annum; and Junior House Surgeon, salary £70 per annum, with board and residence in each case.

SHEFFIELD ROYAL HOSPITAL.—Junior Assistant House Surgeon, unmarried. Salary £50 per annum, with board, washing, and lodging.

SMITH ISOLATION HOSPITAL, Henley-on-Thames.—Medical Superintendent, for six months. Salary at rate of £80 per annum, and allowances.

SWANSEA UNION WORKHOUSE.—Assistant Medical Officer. Salary £200 per annum.

UNIVERSITY OF GLASGOW.—Examiner for Degrees in Medicine and Science, with special reference to Physics. Salary £50.

WEST AFRICA.—Medical Officers, unmarried, for military expedition. Engagement for six months, excluding voyages. Salary £30 a month. Free passages both ways and with full pay. £10 gratuity for each month of service in West Africa. Free rations and field allowance of 5s. a day while in West Africa. Application should be sent to the Private Secretary, Colonial Office, Downing-street, S.W.

WEST AFRICA, GOVERNMENT RAILWAY.—Assistant Medical Officers. Salary £35 per month. First-class passages, free quarters, and four fourths' leave on half-pay after eight months' residential service. Apply to Messrs. Shelford and Son, 35a, Great George-street, Westminster, S.W.

WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician and House Surgeon for six months. Board and lodging provided.

WOLVERHAMPTON EYE INFIRMARY.—House Surgeon. Salary £70 per annum, with rooms, board, and washing.

Births, Marriages, and Deaths.

BIRTHS.

BOXALL.—On August 26th, at Portland-place, W., the wife of Robert Boxall, M.D. Cantab., of a daughter.

FRANCIS.—On August 20th, at Arnold, Notts, the wife of Harvey Francis, M.D. Durh., of a son.

GIBBS.—On August 4th, at Chestnut Lawn, Stechford, near Birmingham, the wife of T. Harold Gibbs, M.B., B.S. Durh., of a daughter.

JOSCELYNE.—On August 26th, at The Homestead, Southwick, Sussex, the wife of E. W. Joscelyne, M.B. Durh., of a son.

ROWLAND.—On August 21st, at 10, College-road, Brighton, the wife of Walter J. Rowland, B.A. Lond., M.B. Durh., M.R.C.S., L.R.C.P. Lond., of a daughter.

WALLACE.—On August 25th, at Battersea-rise, S.W., the wife of Joseph B. Wallace, M.B. Glasg., of a son.

MARRIAGES.

NEWSOME—GIBBS.—On August 22nd, at St. Stephen's Church, Redditch, by the Rev. Canon Newton, vicar, Herbert Newsome, M.B., B.S. Durh., late R.N., to Christine Marguerite, youngest daughter of William Gibbs, Esq., Crossles, Redditch.

SULLIVAN—DUNCAN.—On August 27th, at St. Katharine's Roman Catholic Church, Bow, P. Sullivan, L.R.C.P., L.R.C.S., &c., of Campbell-road, Bow, to Janet Blanthorne, younger daughter of Captain Robert Duncan, of the R.M.S. *Kinfauns Castle*, and of Forest Gate.

TAGGART—COCLOUGH.—On Wednesday, August 21st, at Christ Church, Greenheys, Manchester, by the Rev. J. F. Tristram, Joseph Scott Taggart, M.B., Ch.B. Vict., of Heaton Chapel, eldest son of the late Cæsar Scott Taggart, of Manchester, to Alice, daughter of Mrs. Coclough, Burslem, Staffs.

SILVER WEDDING.

HAYNES—JONES.—On August 30th, 1876, by the Rev. C. Musgrave Harvey, rector, the Rev. A. B. Dickinson, rector of Old Radnor, and the Rev. Alfred Scott, Horace Eyre Haynes, of Evesham, to Lucy Marion, second daughter of Frederick Jones, Esq., of The Friars, Acton (now residing at Bishopstone House, Bedford).

DEATHS.

BAKER.—On August 21st, in London, Thomas Young Baker, M.R.C.S., L.S.A. Lond., Brigade Surgeon, Army Medical Service, retired.

BUCKLEY.—On August 26th, at Linden-gardens, Kensington, Henry Child Buckley, M.B., M.S. Aberd., J.P., aged 57 years.

KELLY.—Suddenly, on August 18th, Adam Lawson Kelly, M.D., F.F.P.S. Glasg., aged 66 years, of 28, Blythswood-square, Glasgow.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A DISPUTED ACCOUNT.

THE *Windsor Chronicle* of August 23rd contains an account of an action brought by Mr. W. L. T. Goodridge, a medical man at Windsor, against Mr. A. F. Davies, landlord of the Grapes Hotel, in the same town, for the sum of £1 13s. alleged to be due for professional services. The action began in a manner that is very familiar to medical men. One guinea of the account was for attendance upon the defendant's barmaid, and the question arose whether the defendant, or the patient, or the patient's mother was liable for this sum. The other 12s. was charged by Mr. Goodridge for attendance upon Mrs. Davies's baby. According to Mr. Davies, the visits to the baby were not professional visits but friendly ones, mere casual conversations when Mr. Goodridge was in the house; and he also maintained that he was not liable to pay the barmaid's account, although it would seem that he or his wife called Mr. Goodridge to attend upon her. We are glad to say that the judge gave judgment in favour of Mr. Goodridge for the full amount claimed, with costs. But winning his case in a county-court will hardly compensate Mr. Goodridge for the annoyance which he has had to undergo. A public-house is a centre of gossip, and the defendant's view of the matter was certain to be insisted upon before the action and will probably be stated frequently now that the case has gone against him.

WANTED—A SEASIDE RESORT.

To the Editors of THE LANCET.

SIRS,—Can you or any of your readers give me the name of a quiet seaside town on the south-west coast where a person suffering from catarrhal phthisis could pass the winter with a minimum of cold and wet weather? The patient, a lady, has benefited materially by open-air treatment for the last two months and has an insuperable objection to going abroad for the winter. One lung only is affected and that not seriously.

I am, Sirs, yours faithfully,

August 20th, 1901. OPEN-AIR.

DIVISIONAL POLICE SURGEONS AND CABMEN.

WE have received a copy of the *Cab Trade Record*, the official journal of the London Cabdrivers' Trade Union, for August, 1901. The London cabby is, as a rule, a civil-spoken, hard-working man. He may have his own interpretation of the Scriptural dictum: "Whosoever shall compel thee to go one mile go with him twain," but we prefer to regard his fondness for making two miles into four as a weakness rather than a vice. The interests of cabmen will not be served by such impertinences as appear in the official journal, which has been forwarded to us, in passages marked on pages 2 and 4. The paragraphs in question deliberately charge "some of those medical hacks known as divisional police surgeons" with being "in with the police" and with doing their work in a "perfunctory and self-interested manner." A more graceless, baseless charge was never brought. The *Cab Trade Record* insists that every cabman charged with drunkenness should demand to be examined by an independent medical man. We see no objection to any cabman calling in as many medical men as he likes, provided that he pay them their fees, but we see every objection to the bringing of unfounded charges against a set of men who are quite as honest and as hard working as cabmen.

MANDRAKES.

ON August 24th Mr. William Hawkins was charged at Southwark Police-court with being drunk and disorderly. He was hawking mandrake and had established his "pitch" outside the shop of a rival dispenser of drugs whose goods he was comparing with his own much to the depreciation of the former. But as regards Mr. Hawkins and his mandrakes, which were probably briony roots, he has only himself to blame for getting into trouble. He mentioned that he dug up his mandrakes with a table-knife. This is not at all the right way to go to work. The mandrake, if we may believe experts on the subject, is a terrible root and demands caution. According to the best authorities when evulsed from the earth it is naturally annoyed and shrieks. If the gatherer hears the shrieks he immediately dies or goes mad or is stricken with some loathsome disease. The proper way to gather mandrakes is to go to where they grow at the right time, the season of the year, the phase of the moon, and several other matters being taken into consideration. A dog, preferably one belonging to someone else, also has to be procured. One end of a cord is to be attached to the mandrake and the other to the dog. The seeker after mandrakes having carefully stopped his ears says "Rats," or stimulates the dog by whipping it so that it bounds forward and so pulls the mandrake out of the ground. On hearing the shriek the dog dies. The root is then carefully gathered into a clean linen cloth and taken home. The genuine article is the *Mandragora officinalis* and if gathered according to instructions it possesses wonderful properties. The earliest recorded use of mandrakes was as a charm or drug to promote fertility as may be seen from Genesis xxx. 14. But as mandrakes were uncommon and dangerous to get and there was a great demand for them the ingenious traders

were wont to substitute artificial mandrakes. Sir Thomas Browne gives the following description of these mandrakes quoted from a physician named Mathiolus who he says learned this "way of Trumpery from a vagabond cheater lying under his care for the French disease. ..... The roots, which are carried about by impostors to deceive unfruitful women, are made of the roots of canes, Brinoy, and other plants, for in these, yet fresh and virent, they carve out the figures of men and women, first sticking therein the grains of barley and millet where they intend the hair should grow; then bury them in sand until the grains shoot forth their roots, which at the longest will happen in 20 days; afterward, clip and trim those tender strings in the likeness of beards and other hairy teguments." We do not wish to imply that this was Mr. Hawkins's method, but we merely point out that he cannot find the genuine mandrake in this country for it does not grow here, and that it is as well for him that he cannot if he digs up his roots with a knife. He was fined 5s. and we think he may consider himself lucky that nothing worse happened. Dabbling in magic nowadays does not pay.

"THE EQUIPMENT OF A CIVIL SURGEON AT THE WAR."

To the Editors of THE LANCET.

SIRS,—In reply to your correspondent "Civil Surgeon," in THE LANCET of August 24th, p. 574, I would suggest the subjoined kit for a civil surgeon going to South Africa. Many of the things perhaps seem superfluous, but no one would regret having taken them when once up country. All camp furniture, &c., can be easily disposed of at cost price on leaving the country, so that the initial outlay is not really so great as it seems. Many men, to avoid a little extra expense, take all manner of makeshifts most weird; the position of civil surgeons is anomalous enough in all conscience—they need not look like bandits. Primarily uniform is absolutely essential—there is a local army order to that effect. I would strongly urge that it should be bought at a "pukka" military tailor's, such as Hawkes, Piccadilly, and not at any "stores." The following is the list. One khaki serge tunic, one khaki drill or gabardine tunic, both with leather buttons and detachable gorget patches and no badges of rank. I would also suggest a plain blue serge "jumper" with brass buttons and plain blue trousers. This suit would be found to be most useful at mess, dining out, &c. One pair khaki serge trousers, one pair khaki drill trousers, one pair Bedford cord riding breeches strapped with leather, one pair pigskin Stohwasser leggings, one pair khaki Fox's spiral putties, one pair not too heavy brown shooting-boots, one pair lighter weight brown boots, one pair leather slippers, one dozen pairs extra leather laces and boot-cleaning gear, one khaki serge field cap, one good felt slouch hat with puggaree, one Sam Browne belt without sword attachment, one khaki haversack, one Silver's vulcanite water-bottle, one military mackintosh, one cavalry cloak (to be obtained at the Army Clothing Factory, Pimlico), one flannel "mufti" suit and a soft cap, four good flannel shirts, one medium Jaeger vest and pair of pants, two suits flannel pyjamas, 12 pairs socks, two khaki silk handkerchiefs for the neck in lieu of collars, 12 handkerchiefs, one camp bed and mattress, one Wolseley valise, one pillow, two blankets, one canvas bath, and one cavalry aluminium canteen. The camp furniture should be marked with the owner's name in plain letters. One Berkefeld filter, one pair of spurs, and one waistbelt with swivel for attaching a good hunting knife. All the above with the exception of the camp kit can be put into a large waterproof canvas kitbag to be obtained from the Army Equipment Stores in Regent-street. The camp kit and Wolseley valise can be put in a canvas sack with padlock mouth. In addition I should advise the taking of a small-size Gladstone bag for small articles. A supply of chocolate and Lazenby's soup squares are sound things to take, and above all things a Berkefeld filter. If fond of sport a 12-bore shot-gun should be taken, which can be easily sold on coming home, and about 500 cartridges No. 3 and No. 6 shot. A Zeiss field-glass is very useful to have and a camera (No. 3 pocket folding Kodak for choice) and six dozen films in a calcium tube. For instruments a pocket case, a stethoscope, a one-minute clinical thermometer, and a hypodermic syringe with metal piston with a supply of tabloids.

I am, Sirs, yours faithfully,

St. Thomas's Hospital, S.E., August 27th, 1901. A. E. STEVENS.

A DOCTORS' AGE

To the Editors of THE LANCET.

SIRS,—When is he old? When is he so old-fashioned as to be in the eyes of his patients useless? Time was, and not so long ago, when a medical man was not much considered, not much trusted, and not often consulted by the people till he had arrived at a good old age as to time and experience. But we have changed all that now, and the doctor may become old-fashioned, even professionally decrepit, when comparatively young and not yet by any means in the sere and yellow leaf. This terrible fact arises from two apparent causes. Many medical men, once qualified, once endowed with their degrees or diplomas, are so far satisfied with their position that they cease to work, read, or keep up with all the many advances and improvements in the progressive science and art of medicine. Another reason is that medicine, that is, the science and practice of his art, is so progressive that it is no libel to say that the student of to-day knows as much as the profession of 20 years ago, and what was looked upon as truth, founded on stable law, is found by the increased and burning light of scientific research to be doubtful if not fallacious. This being so it comes to this, that unless the practitioner keep pace with this advance he necessarily falls behind in the race and becomes what is called old-fashioned, effete, and, indeed, a drug in the market. Patients—i.e., patients in the higher platform of intelligence—very often come to look with suspicion on the medical man whose hair is white and who, in their idea, has travelled beyond the energies, and maybe the conceits, of youth. The remedy, if there be a remedy, for this untoward state of matters is for the medical man to be as much a student as practitioner, and to show his patients that, though old in years, his age is dowered by the best and most progressive of scientific experience. We are told in the Book that on the walls of Belshazzar's banqueting-hall appeared the words, "*Mene*, he is numbered; *Tekel*, he is weighed"—referring to the impending destruction of Babylon. Let these ominous words, when applied to the old medical man be words denoting that though old in years he may still be young and vigorous, so far as he is concerned with the scientific practice of his profession. The physician or surgeon living in cities or towns, where he has the great and manifest advantages of the hospital or infirmary, can, if he likes, rise to, and keep the platform of, the highest and most enlightened practice. This cannot be gainsaid, but it must not be forgotten that as "stone walls" do not a prison make, so the general practitioner, or even the village doctor, has in his practice (especially midwifery) as much material for scientific research as the most fashionable and successful city practitioner. Only, let it be understood that this general practitioner must keep up to the times, must be the diligent student first, to be the successful and respected practitioner afterwards.

I am, Sirs, yours faithfully,

August 22nd, 1901. SENEX.

"HOME EXERCISES IN SPINAL CURVATURE."

To the Editors of THE LANCET.

SIRS,—Would you or one of your readers inform me who is the publisher of this book? The price is 2*s*.

I am, Sirs, yours faithfully,

August 25th, 1901. ENIGMA.

"STUPID, ISN'T IT?"

"No, don't do that. I don't want to be found here. Besides, its useless. I know exactly what has happened. A point of the serrated edge of the Order has pierced the brain near the eye. The first effect was unconsciousness, the next will be internal bleeding, the last will be coma and death. In five minutes a clot of blood will have covered the lacerated brain, and I shall lose consciousness again. Stupid, isn't it?"

When we happened to see the above passage quoted in sundry reviews of Mr. Hall Caine's book we were inevitably reminded of certain graphic and obviously inaccurate passages about hospitals which appeared in "The Christian." When, however, we read the "Eternal City" for ourselves we thought it possible that Mr. Hall Caine had compressed as much ignorance on medical subjects as he could into six lines because the drivel is exactly what a man like Baron Bonelli would have said. He was a wicked old man who was false to his mistress and false to his wife, whom he left to die alone, though he had the decency to see her body removed to the church. He was, though a Prime Minister, nothing but a *poseur* with an affectation of knowing everything, so that when he was dying he might very well have made the silly speech put into his mouth. But a further perusal of the book assures us that the speech is not due to Baron Bonelli's overweening vanity but to Mr. Hall Caine's ignorance. On page 349 is a description of the last illness of the countess, the aunt of the heroine. Dr. Fedi, the physician called in, came and "examined the countess—her breast, her side, and the glands under her arms ..... and announced that the patient must have a nurse immediately." When he came again he found his patient worse and thus delivered himself: "Your aunt has internal cancer. If the tumours had been diagnosed while still small nephrectomy might have been possible; now they are beyond the reach of legitimate surgery." A man who either thinks that malignant disease of the kidney can be diagnosed by examining the mamma and the axillary glands or, else, that nephrectomy is the operation usually performed for mammary cancer, will believe anything. The doctrine of invincible ignorance will, perhaps, be a reason for thinking that Mr. Hall Caine is not a wilful sinner, but the man who writes on medical subjects in such a fatuous manner is not the one to criticise hospitals and their work with the pomposity and self-satisfaction with which Mr. Hall Caine wrote in "The Christian."

X. Y. Z.—If we understand the question the patient is not only of age now but was of age at the time that he was attended. We think that the decision, if legal proceedings were taken, would depend upon the particular judge's view of the case. A medical man, when sent for to a house, presumes that the master of the house is responsible for the payment of his fees. In the case of domestic servants, even if summoned by the master or mistress of the house, he usually inquires to whom the bill is to be sent; but in the case of a son of the house he would naturally suppose that if the patient did not pay him the father would. X. Y. Z. will, of course, not take legal proceedings except upon legal advice.

F.R.C.S., in a communication which it would hardly be advisable in the interest of the profession as a whole to publish, attributes the majority of the ills, referred to in the letters headed "The Times are Troublous," to the congested condition of the Register. To a certain

extent he is right, but the situation is one that we believe is curing itself to some extent; while he must remember that the duties which now fall to the lot of medical men are much more numerous and far-reaching in their scope than they used to be.

Mr. L. Roberts.—Washing soda is to a certain extent corrosive and therefore is not so suitable for use in domestic cookery as the bicarbonate of soda, but used with due caution no harm would occur. No cases of either illness or of death from the use of washing soda in cookery have come under our notice.

Robin.—We have no definite information on most of the points contained in our correspondent's letter, but in the current Medical Directory the name of the present medical officer in charge is given as Dr. M. N. Sharman, to whom our correspondent had better write.

Perplexed desires to know if a boy studying for the army who is unable to close his left eye voluntarily and consequently shoots from the left shoulder would be handicapped as an artillery officer or for a line regiment. His vision is good.

X. writes to us upon Sanatoria, but has not inclosed his name and address for our information.

During the week marked copies of the following newspapers have been received:—*Echo, Cambrian News, Windsor Chronicle, Surrey Advertiser, Scientific American Supplement, Engineer, Local Government Journal, Yorkshire Post, Standard, Reading Mercury, Mining Journal, Hertfordshire Mercury, Bakers' Record, South African News, Windsor and Eton Express, Liverpool Daily Post, Aberdeen Weekly Free Press, Blackburn Weekly Standard, Huddersfield Examiner, Leighton Buzzard Reporter, Architect, Monthly Record, Animal Guardian, Daily Chronicle, &c.*

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 29th, 1901.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Aug. 23	30·25	E.	...	110	80	57	59	63	Hazy
,, 24	30·13	E.	...	106	78	58	60	62	Hazy
,, 25	30·03	S.E.	...	114	84	55	56	65	Cloudy
,, 26	29·42	S.W.	0·31	116	66	56	53	58	Cloudy
,, 27	29·77	W.	0·29	104	65	49	52	58	Cloudy
,, 28	29·81	N.W.	0·46	109	65	48	49	54	Fine
,, 29	30·03	W.	...	106	65	52	51	56	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (2nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.) West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (3rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

WEDNESDAY (4th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.).

THURSDAY (5th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

FRIDAY (6th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square, (9.30 A.M.).

SATURDAY (7th).—Royal Free (9 A.M. and 2 P.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.), Throat, Golden-square (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (2nd).—WEST LONDON VACATION POST-GRADUATE COURSE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Bidwell: Preparations of Instruments and Ligatures.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

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Communications, Letters, &c., have been received from—

A.—Anglo-American, &c., Pharmaceutical Co., Croydon; Messrs. Allen and Hanburys, Lond.; A. B. S.; A. B., Bristol; Agricultural Organisation Society, Mr. J. N. Harris; Mr. J. Atkins, Birmingham.

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I.—*Il Piccolo*, Trieste.

J.—Messrs. W. and A. K. Johnston, Edinburgh.

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